Malaya.

DRAFT DEVELOPMENT PLAN OF THE FEDERATION OF MALAYA

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DEVELOPMENT PLAN
OF THE
FEDERATION OF MALAYA

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FOREWORD.

WORK on the preparation of this Plan began in 1949 and was completed in June, 1950, for presentation to the Legislative Council in July. Chapters I and II have been published separately: Chapters III and IV are new.

The Plan is an attempt to define the objectives of social and economic policy for the period 1950-55: to balance them in relation to each other, and to plan them within range of the resources available to finance them.

It is not, in this last respect, an unduly ambitious plan. It aims at being not only progressive, but also honest and realistic. It does not include certain services already in existence that could be classed as development.

The difficulties of preparing it have not been lessened by the fact that the Federation comprises twelve separate Governments each responsible for such services as education and agriculture in their own spheres; and have of course been greatly increased by the prevailing uncertainty as to how far the cost of defence, internal security and emergency services (now 45 per cent. of Federal revenue) can be met from sources outside the Federation.

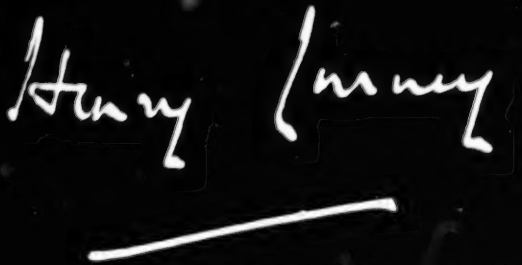
No plan can be final, in the sense that it will not need revision from year to year. It must be flexible. But a country that is becoming a nation must have a policy and a plan, and these must rest on certain assumptions.

In our present circumstances, the first assumption we make is that the demands of the people for social services and social justice must somehow be met. The conditions under which people live must be improved, and the worker must be better off in both the essentials and the amenities of life. Those who default and make no contribution to national wealth can no longer expect to draw on it for their own benefit.

The second underlying feature of the plan lies in its emphasis on rural development. The Rural and Industrial Development Authority, which is being constituted, will have in its hands the task of working out and executing many of the schemes referred to in the plan. It is necessary that the producers in the rural areas should enjoy a greater share of the proceeds of their labour than they obtain at present.

Readers of Chapter III, which attempts to deal with development by non-Government agencies, may feel that it asks more questions than it answers. The Government is, of course, in no position to set out the plans of those engaged in trade and industry, and the purpose of this chapter is to forecast generally the production of the major industries and to describe the background of Government policy in a way that may be of service to those responsible for such plans.

I would again repeat that the battle against illiteracy, poverty and all those conditions of social discontent on which Communism feeds can be won ultimately only by a policy aimed at their removal and planned and carried out in co-operation with the aspirations of the people. This Plan should therefore be looked upon not as something dictated by the Federation Government but as a composition of ideas that are thrown out for thought and criticism. It is not complete, nor rigid. I commend a study of it to all those who are interested in our economic future.



High Commissioner.

KUALA LUMPUR,
21st June, 1950.

CHAPTER I.

The Development of Social Services in the Federation of Malaya.

CHAPTER I.

THE DEVELOPMENT OF SOCIAL SERVICES IN THE FEDERATION OF MALAYA.

PART I.—INTRODUCTION.

THE object of this Chapter is to set out, with a minimum of detail, a possible programme for the future development of social services in the Federation of Malaya. Education, Labour, Medical and Welfare are the services dealt with; the development of Housing facilities will be mentioned in Chapter II.

2. For reasons stated in paragraph 7 below, the programme has been drawn up to cover the six years 1950-1955. In addition, an outline of the principal "long term" social objectives has been prepared, to provide, not a working drawing, but a panoramic background against which the six-year programme will stand out clearly and in true perspective.

LONG TERM OBJECTIVES.

3. Under this heading are described, in paragraphs 17-34 below, the principal aims of the four services mentioned. To secure uniformity of social development, these various aims need to be realized simultaneously, or as nearly so as possible.

There are three further points to be observed about this part of the programme.

4. In the first place, these objectives fall short of what has already been accomplished in some countries, as they are also well in advance of anything that is even contemplated in others. One of the Medical Department's long term objectives, for example, is the improvement of general hospitals. Other aims, such as a National Health Scheme, are secondary, not because they are less desirable or less important but because so much ground work has to be done before they become practicable. Foundations have to be laid first, and the structure added afterwards; the order cannot be reversed.

5. Secondly, the estimates of cost of this long term programme are tentative, and the time necessary to complete it cannot be guessed. It is common knowledge that even countries with "self-centred" economies which are comparatively insensitive to external influences, have been completely wrong about the time, and only a little less so about the cost originally estimated to be necessary for the completion of their long term programmes.

6. In the third place, experience shows that no plan, however carefully contrived and immutably decreed, survives for more than a year or two unaltered. Nobody can predict what the future will bring, and while it is safe to say that then, as now, the social services will be developed in harmony and at a uniform rate (so that, for example, schemes devoted to the healing of the body and to the training of the mind each receive an appropriate share of the country's resources, the one not profiting at the expense of the other), it cannot also be denied that the emphasis on different sides of the programme will alter materially from time to time. Scientific developments too will provide good reason for modifying it.

THE 1950-1955 PROGRAMME.

7. The six-year period is a compromise. From a theoretical point of view it is rather too short because certain schemes (e.g., training schemes) begun during the period have hardly time to show results and prove their worth by the end of it. From a practical point of view six years are almost too long, since it is usually difficult enough to produce a programme that will remain valid for as long as twelve months, even when political and economic factors are comparatively stable.

8. In this six-year programme, details of which are given in paragraphs 35-47 below, certain positive steps towards the attainment of the long term objectives have been proposed. There must of course be general agreement regarding those objectives before the shorter programme can be considered. This however is not likely to present any serious difficulties. Nor, for that matter, will there be two opinions about most of the items which, by reason of their urgency, have found a place in the shorter programme of development during the next six years.

STAFF.

9. The lack of trained staff is a matter for some concern; at the moment it is proving difficult even to maintain existing standards because of the shortage (e.g., of doctors). It may reasonably be hoped that this is only a temporary problem. Its effect on the proposed 1950-1955 programme has been to give rather higher priority than might otherwise have been accorded to schemes for or connected with the training of staff.

FINANCE.

10. This is of course the limiting factor of crucial importance. The nature of the financial problem cannot be more concisely expressed than in the words of the old proverb "Cut your coat according to your cloth". Pursuing this metaphor, it may be observed that careful cutting will make the most of the cloth, and attention to the style of the coat will help to give most warmth in the parts where it is most needed. By neither of these means is the length of the cloth increased. A larger coat needs more cloth—increased expenditure requires higher revenue.

11. The immediate problem is how to equate expenditure on development in the six years 1950-1955 with the limited amount of revenue which may be available for that purpose. Many unknown quantities enter into this equation, and any serious attempt to resolve it must be deferred until the final Chapter. Here it is only possible to give a very rough forecast of the general conclusions to be discovered there, but it is desirable that such a forecast be made if only to make it clear that, even if a full discussion of the financial factors has been reserved until a later stage, consideration of what the limits are likely to be has in fact preceded the drawing up of the short term programmes detailed in this and in the following Chapter.

12. The source of finance which may be mentioned first, since it is an exceptional one, is the allocation under the Colonial Development and Welfare Act. The position here is that approximately $23,000,000 will be available between now and the end of March, 1956, for expenditure on approved schemes in the Federation of Malaya (there is a separate sum available for certain schemes undertaken jointly by the Federation of Malaya and the Colony of Singapore but none of these are concerned with social services). Schemes to be paid for out of this Fund have to be approved by the Secretary of State before they can be executed, and the details have still in many cases to be worked out. Considering the general financial position of the Federation of Malaya at the present time, and the

urgency of spending money on development schemes (e.g., agricultural improvements) which will be actually productive in character and so increase the national income, it is unlikely that more than two-thirds of the sum available will be allocated to the development of social services which, in any short term point of view, are not merely non-productive themselves but usually involve large sums of future recurrent expenditure (e.g., schools, hospitals, institutions, etc.). In these circumstances it will be dangerous to assume that a sum of more than say $15,500,000 will be available for the purposes discussed in this Chapter.

13. Loans are the normal means by which capital is found, for enterprises which will be self supporting and, to a lesser degree, for the extension of social services. Assuming a sufficiency of capital awaiting investment, the capacity to raise loans is mainly limited by the capacity of the loan raising country to service them, i.e., to put aside out of its annual revenue a sufficient sum to pay the interest and sinking fund charges on the loans. This is, of course, an over-simplification, but if not entirely true it has the merit of drawing attention to the principal fact by which the financial strength of a country, whether to raise loans or to do anything else, is gauged, namely its ability over a long period to balance its budget successfully. Thus a country must examine its budgetary position—as the investing public most certainly will—before deciding whether it is possible to raise money for capital purposes by further loans or not.

14. The annual revenue of a country derived from taxation and other receipts can only in times of quite exceptional prosperity be used to finance large capital projects. The first charge is to meet the normal recurrent expenditure of Government, such as wages, salaries, maintenance of roads, schools, hospitals, etc., and for the servicing of loans already raised. In addition Government every year has to make provision for assets of a capital nature which owing to the smallness of their cost or the shortness of their life are not suitable for charge to loan funds, e.g. typewriters, motor vehicles, furniture, etc. Although individually the cost of the items is small, the total expenditure on this account throughout the Government service is considerable. A country can only afford to raise a loan for expansion of the social services if, after meeting these charges, there is a surplus which will be both sufficient to service the loan and to provide for the expenditure necessary to maintain the expanded services. Loans to finance schemes of economic development (of which examples are given in Chapter II) are in a different category in that it is generally assumed that the additional revenue to be derived from the projects on which the loan money is spent will service the loan and pay for their maintenance.

15. Leaving aside the cost of the emergency and defence and internal security the position of the Federation at the moment is that the revenue is scarcely sufficient to meet the normal recurrent expenditure and the capital expenditure mentioned above as chargeable to revenue. Moreover with the present uncertainty in regard to the future of tin and rubber there is no certainty that, at the present rates of taxation, revenue will maintain its present level.

16. The general conclusion, is therefore, that apart from whatever may be provided by the Colonial Development and Welfare Fund very little capital will be available for expansion of the social services, unless cuts are made in present recurrent expenditure, or revenue is increased. Indeed there is not really even this alternative, since if economies of any size were to be effected this could only be done at the cost of existing social services. The development of social services in this territory on the scale envisaged,

modest though it is, will therefore undoubtedly require a considerable increase of revenue which can only be obtained through taxation. It is in the light of these facts that the following outline of long term objectives, and more detailed particulars of a six-year programme, may be critically examined.

PART II.—LONG TERM OBJECTIVES.

EDUCATION.

17. As the educational policy of the Federation of Malaya has not yet been decided, the long term objectives put forward here must be regarded as open to review. There are however certain basic facts about Education in the Federation of Malaya requiring to be stressed. Last year, out of a population of about a million children between the ages of six and 12, approximately one-third received some sort of schooling, and two-thirds did not. The number of children within this age-group is increasing by about 25,000 every year. Alternative suggestions have been:

(*a*) To provide free Government education in English for all these children (an ideal which many have strongly urged for social, economic and political reasons) would ultimately require at present figures—

(i) capital and special expenditure of approximately $240 millions to build 1,600 schools;

(ii) an increase in annually recurrent expenditure of approximately $178 millions.

Common sense shows that, with an estimated national revenue (State and Federal together) for 1949 of $307 millions, free Government education must for the present at any rate be regarded as an ideal, rather than as a long term objective capable of realization.

(*b*) To provide Government education on the present English and vernacular system for the two-thirds of the children who receive no education, and for others in the same age-group educated in private or partially aided schools, would ultimately require, at present figures:

(i) capital and special expenditure of approximately $180 millions to build and equip the schools necessary;

(ii) annually recurrent expenditure of $66 millions (additional to the normal annually recurrent expenditure which, including cost of living allowances and expatriation pay, is estimated in 1950 to be approximately $33 millions).

18. It is clear that even if the population were to remain stationary (which it certainly will not do), there would have to be a very considerable increase in the national revenue to bring any such schemes for universal education within the range of practical politics. In this connection it may be mentioned that the expected revenue from school fees and the education rate (where this is collected) in 1949 is $1.2 millions—less than one-twentieth of the estimated educational expenditure for that year. The possibility of raising more revenue for educational purposes will be examined later in Chapter IV.

LABOUR.

19. In the past the main responsibility of the Labour Department has been the prevention or settlement of disputes between employers and workers and the enforcement of the Labour Code. The Labour Code is a

very comprehensive piece of legislation which has been in operation since 1923 and is now in certain respects somewhat out of date. There exists a widespread demand for the introduction of minimum standards for all grades of workers, and if this demand is to be met the Labour Code which deals with certain categories of labourers only will have to be revised. The matter has been considered by the Federal Labour Advisory Board which recommended that a comprehensive Employment Code be prepared covering all "wage earners" with incomes up to $400 gross per month and that concurrently the Workmen's Compensation Ordinance be redrafted covering the same categories (with perhaps a few exceptions). The suggested extension of the Labour Code may have to be introduced slowly, for financial reasons. The extension of the Workmen's Compensation Ordinance however is both necessary and feasible and will cost little to introduce.

20. Looking forward to the future, an even more important development is the establishment of a National Employment Exchange Service. The Labour Department is in possession of ample evidence to show that, because of the lack of this service many employers fail to procure the labour they require, while many workmen also fail to find employment. This must be regarded not merely as a loss to the individuals concerned, but as a wasteful state of affairs from the point of view of the national economy. Nearly all countries nowadays possess some form of public employment service, and the International Labour Organization has recognized the importance of establishing systems of free public employment agencies in its Unemployment Convention of 1919 (ratified by Great Britain in 1921). The Federal Labour Advisory Board has endorsed this view. Apart from functioning as a clearing house for labour and ensuring that the best use was made of all labour in the national interest, the proposed Employment Service would obtain valuable statistical information about the prevailing state of employment and wage rates and would be able, as time went on, to estimate future employment trends. The same service would, as it expanded, itself undertake or organize vocational training for both juveniles and adults. Ultimately, it would provide the machinery through which any Unemployment Insurance system might be operated.

21. Further responsibilities which the Labour Department may shortly have to undertake are those arising out of the proposed Weekly Holidays (Shop) Ordinance and the enforcement of fair wages clauses in Government contracts. More remote but no less important are plans involving such matters as the placing in suitable employment of disabled persons, a Factories Ordinance, the interviewing and placing of school leavers, apprenticeship schemes, the payment or advance of travelling expenses to work-people proceeding to employment in other districts, improvement in the collection and presentation of statistical data, the maintenance of comprehensive wage registers, and the introduction of Dock Workers Safety Regulations.

22. The estimated annually recurrent expenditure of the Labour Department in 1950 is (including provision for cost of living allowances and expatriation pay) slightly in excess of $1 million. To carry out in full the programme outlined above would cost approximately:

$2.00 million in additional annually recurrent expenditure (including provision as above).

$1.25 million in capital and special expenditure.

MEDICAL.

23. Medical priorities can be summarized very briefly as follows:

A. Provision of a training school.

B. Improvement of health in rural areas.

C. Wider availability of treatment for tuberculosis.

D. Additional specialized services in general hospitals.

E. Improvement of general hospitals and other medical institutions.

F. Research schemes.

24. The training school (item A) is the means, whereas the remaining items are ends in themselves. Trained staff is essential before any development of medical services can be undertaken. This item therefore must take precedence over everything.

25. Rural health and medical services (item B) have advanced more slowly than similar services in towns. In accordance with the general principle that social services should be distributed evenly before they are extended more widely, improvement of rural health must have high priority. This can best be effected by means of a network of rural health centres, each serving a population of approximately ten thousand inhabitants. Between 100 and 200 centres are necessary. This service will, when fully extended, be co-ordinated with that provided by estates for their own labourers.

26. During the last decade knowledge of how to treat the disease of tuberculosis (item C) has made great progress, but on account of the war proper steps have not been taken to apply this knowledge. Here it is unnecessary to describe in detail the means by which tuberculosis can be prevented and, in some cases, cured; medically, the main requirements are (*a*) institutions for cure, (*b*) isolation homes, and (*c*) clinics and dispensaries for out-patients. Of these (*c*) is the most important, as through such clinics the widest results can be obtained at the least cost. It has been estimated that at least eighty of them are required.

27. There is scope for the development of various specialized medical services (item D) in general hospitals, particularly those connected with maternity and orthopaedic work. Among these, extension of maternity services is pre-eminent, for the saving of mothers and children's lives which it entails.

28. Progressive rebuilding of general hospitals (item E) is necessary, particularly where they have grown up haphazard, as in Kuala Lumpur, Ipoh and Seremban. Consideration of cost makes complete rebuilding impossible, but much can be done to adapt, improve and extend the existing institutions.

29. It is perhaps unnecessary to adduce any arguments in support of a programme for the development of research (item F) so soon after the discovery of a cure for scrub typhus. The results in this case were spectacular, and it is sometimes forgotten that they were the result of years of painstaking research and experiment.

30. The estimated annually recurrent expenditure of the Medical Department in 1950 is (including provision for cost of living allowances and expatriation pay) in the region of $30 millions. To carry out in full the programme outlined above would cost approximately:

$25 millions in additional annually recurrent expenditure (including provision as above)

$63 millions in capital and special expenditure.

SOCIAL WELFARE.

31. In Malaya before the war social welfare was regarded as being primarily a matter for the family or clan organization, or for philanthropic and other societies to which Government in some cases gave grants-in-aid. In the aftermath of war every sort of social problem, whether simple distress or a more complex matter like the incidence of juvenile delinquency, became far bigger and more difficult to solve, and former methods of dealing with the situation were no longer adequate. While continuing therefore to rely to the maximum extent on voluntary effort, Government had itself to undertake the responsibility of providing certain essential welfare services. The Department of Social Welfare was created as its agency for doing so.

32. During the first few years of its existence this department was called on to handle one emergency after another, and for a long time it was not clear what, when a period of relative stability was reached, would be the essential matters to which its energies should be devoted. As time went on however it became easier to see what former useful activities should be continued and what new developments should be planned. As far as the latter were concerned, the following constituted the main items:

(*a*) some additional responsibility for care of the aged and destitute, particularly vagrants;

(*b*) expansion of existing services for the care and rehabilitation of women and girls. The disruption of family life caused by the war increased the urgency of this problem;

(*c*) inauguration of many new kinds of welfare work aimed at promoting the well-being of children and young persons. The necessity for this requires no elucidation;

(*d*) more attention to be given to rural welfare, so that by improving the lot of the rural population it might be possible to check the drift into the towns—a dangerous tendency in a country so dependent on its rural industries;

(*e*) extra privileges and opportunities for certain handicapped groups, e.g., lepers and the blind;

(*f*) the furtherance of research to prevent social maladjustments and to encourage social growth on healthy lines;

(*g*) the provision of special training in social welfare, so that such work would be done efficiently and economically.

33. It will be appreciated that these items by no means cover the full range of the department's activities, but only those which there appears to be some possibility of developing in the foreseeable future. A further point to which attention should be drawn is that a development programme of this size could never be carried out unless voluntary effort supplemented Government activity to at least the same degree as it has done in the past. In a recent report (Legislative Council Paper No. 41 of 1949) of a Committee appointed to investigate the working of the Social Welfare Department it was noted that opinion, both official and unofficial, was uniformly in favour of maintaining and if possible extending present standards of social services. In practice the rate of such improvement will be mainly determined by the degree to which local interest in projected welfare schemes is aroused, and by the measure of private help on which Government can rely in executing them.

34. The estimated annually recurrent expenditure of the Social Welfare Department in 1950 is (including provision for cost of living allowance and expatriation pay) approximately $3.75 million. To carry out the programme outlined above would cost approximately:

$4 million in additional annually recurrent expenditure (including provision as above).

$6 million in capital and special expenditure.

PART III.—DRAFT PROGRAMME, 1950-1955.

EDUCATION.

35. Having regard to the fact that the educational policy of the country is not yet decided, and will in any case be extremely costly to carry out (as has been shown in paras. 17-18 above) it has been thought best to draw up a short term programme which will be complete in itself, and is aimed at consolidating existing services rather than at establishing new ones. This decision was made easier by the knowledge that further expansion of the educational system must in any case be delayed until certain essential steps have been taken to secure the present position. In the following programme, therefore, the principal aims are:

(*a*) to obtain maximum benefit from any funds which are or may become available, by increasing and improving teachers' training facilities. If this policy is followed there will be greater efficiency in existing schools and in such additional schools as it may be possible to build. If training institutions are neglected while more schools are built, the standard of teaching and of learning will inevitably decline;

(*b*) to secure an evening-up of educational opportunity. This will necessitate an extension of Malay vernacular schools, particularly in those regions which are comparatively ill-supplied with these, and a building of English "feeder" schools in rural areas so that the best pupils throughout the Federation may have opportunities to proceed to secondary and higher education. There will also have to be some corresponding expansion in the size of the Junior Technical (Trade) Schools. Both the English and the Technical Schools will need hostels in which pupils from outlying districts can be accommodated;

(*c*) to make good some of the more obvious deficiencies in the existing system of secondary education;

(*d*) to increase as may be necessary the present contributions to the University of Malaya.

36. Estimated figures of ultimate cost and special expenditure, etc. (C) and of the annually recurrent maintenance charges resulting therefrom (A.R.) are given in brackets after each item. Further details are given in Appendix A.

A.—TRAINING COLLEGES, ETC.

(i) For English school teachers. Existing schools will never produce the best results until teachers can be given proper training in a residential college (C. $1,870,000; A.R. $500,000).

(ii) For Malay vernacular teachers (men). Only half these teachers have been trained; the existing college is inadequate and another is necessary (C. $1,180,000; A.R. $270,000).

(iii)-(iv) For Malay vernacular teachers (women). Only a quarter of these teachers are trained. Besides expanding the existing college (C. $300,000; A.R. $68,000) it will be necessary to build another (C. $1,360,000; A.R. $250,000).

(v) For teachers in Indian schools. The remarks in (i) above apply, the first necessity being for a Training Centre (C. $35,000; A.R. $74,000).

(vi) For Chinese vernacular teachers. Present teachers are largely the products of the educational system of China. It is important that future teachers in these schools should be Malayan educated and trained. It is therefore proposed to establish some Government Normal schools (and later a Training College) (C. $865,000; A.R. $194,000).

B.—PRIMARY EDUCATION.

(vii) Additional English schools are required in the rural districts, the present schools being largely urban (C. $13,000,000; A.R. $4,580,000).

(viii) Additional Malay vernacular schools are required, particularly in the less literate regions (C. $8,544,000; A.R. $3,300,000).

(ix) Extended provision for Junior Technical (Trade) School is necessary. This should, for reasons of economy and efficient use of staff and expensive equipment, be done by extension of existing schools (C. $240,000; A.R. $242,000).

(x) The schools mentioned in (vii) and (ix) above will serve large areas, so hostels will be required (C. $410,000; A.R. $150,000).

C.—SECONDARY EDUCATION.

(xi) The Malay College at Kuala Kangsar needs to be expanded so as to take double the present number of students (C. $450,000; A.R. $92,000).

(xii) The Malay Girls' College at Kuala Lumpur needs extensive enlargement before a full curriculum up to University standard can be adopted (C. $1,811,000; A.R. $300,000).

(xiii) The existing Technical College, situated in a condemned building, cannot produce either the number or the quality of technical officers to meet an increasing demand. An entirely new building is needed (C. $4,850,000; A.R. $200,000).

(xiv) To bridge the gap between School Certificate and University entrance it is essential that pre-University classes should be opened in a number of suitable centres (C. $100,000; A.R. $71,000).

D.—HIGHER EDUCATION.

(xv) The Federation of Malaya Government is already contributing a very substantial sum in maintenance of the University. It is not possible to forecast what additional expenditure will be required eventually, and therefore only a token sum has been entered (A.R. $275,000).

37. The capital cost of this programme and the addition to the annually recurrent expenditure which its adoption would involve are summarized below:

Capital and special expenditure	$35,015,000
Additional annually recurrent expenditure ... (including cost of living allowances and expatriation pay).	10,566,000

LABOUR.

38. The three Bills mentioned in paragraphs 19 and 21 above are now in draft and will be ready for consideration in the near future. The arrangements consequential on these Bills being enacted must therefore find a place in the 1950-1955 programme. The main item is however the establishment of a National Employment Exchange Service.

39. Estimated figures of ultimate cost and special expenditure, etc. (C) and of the annually recurrent maintenance charges resulting therefrom (A.R.) are given in brackets after each item. Further details are given in Appendix B.

(i) The institution of an Employment Exchange Service will entail new building in some centres, and adaptation of existing buildings in others. All the principal towns should be provided with an Exchange. Considerable new staff will have to be recruited (C. $450,000; A.R. $300,000).

(ii) Administration of the Employment Code Ordinance involves regular inspections of all places of employment. During the six-year period sufficient staff will be engaged to carry out the more urgent of these inspections. (C. Nil; A.R. $50,000).

(iii) Administration of the Weekly Holidays (Shop) Ordinance will also need a certain minimum staff, together with a small amount of new equipment (C. $5,000; A.R. $5,000).

40. The capital cost of this programme and the addition to the annually recurrent expenditure which its adoption would involve are summarized below:

Capital and special expenditure	$455,000
Additional annually recurrent expenditure	355,000

(including cost of living allowances and expatriation pay).

MEDICAL.

41. Not all of the objectives mentioned in paragraphs 23-30 above can be attained within the next six years, and until certain schemes are under way others cannot proceed at all. Due regard has been paid to this fact, in selecting the individual items.

42. Estimated figures of ultimate cost and special expenditure, etc. (C) and of the annually recurrent maintenance charges resulting therefrom (A.R.) are given in brackets after each item. Further details are given in Appendix C.

A.—Training School.

(i) The training of the medical officers themselves will be a matter for the new University. For all other grades the systematic training necessary (including refresher courses) can best be carried out in one large centre. Penang is the obvious choice, as the hospital there would not have to be expanded and the only expenditure necessary would be to build hostels, lecture halls, quarters, etc. (C. $1,287,000; A.R. $821,000).

B.—Rural Health.

(ii)-(iii) A welfare clinic and an infant welfare centre have been planned for 1950 (C. $41,000; A.R. $5,000).

(iv)-(xxviii) Twenty-five health centres are planned for the years 1951-1955, provided trained staff can be found. Each centre will consist of an infant welfare department, an out-patient department and a small health

laboratory. Experience will show what staff is necessary, but they will probably consist of a dispenser, dresser, health inspector, nurses and midwives. An ambulance would normally be attached to each centre (C. $60,000; A.R. $43,000 for each centre).

C.—Tuberculosis.

(xxix)-(xxx) One hospital is to be converted, and a ward in another hospital is to be constructed for T.B. purposes in 1950 (C. $123,000; A.R. $13,000).

(xxxi)-(xli) In the campaign against tuberculosis efforts will be concentrated on establishing clinics and dispensaries and providing them with the necessary equipment for dealing with out-patients in large numbers. If staffing difficulties can be overcome it is intended to build eleven of these clinics during the period (C. $1,914,000; A.R. $1,100,000).

(xlii)-(xliii) In addition to hospitals and clinics, a number of institutions must be made available to cater for chronic cases and convalescents. Two sanatoria of this type are planned for the six-year period beginning in 1950 (C. $765,000; A.R. $1,067,000).

D.—Specialized Services.

(xliv) New patients' quarters are to be built at the Leper Settlement, Sungei Buloh, during 1950 (C. $50,000; A.R. Nil).

(xlv-xlvi) Two new maternity wards are also due to be built during 1950 (C. $96,000; A.R. $32,000).

(xlvii) Later, if staff becomes available, it is hoped to build one complete maternity hospital, together with quarters, etc. (C. $1,020,000; A.R. $300,000).

E.—Improvement of Existing Hospitals, etc.

(xlviii)-(lix) No attempt will be made to mention the individual schemes, which are particularized in the Public Works Extraordinary heads of expenditure year by year in the various Federal, State and Settlement Estimates (C. $10,000,000; A.R. $1,200,000).

F.—Research.

The various special research schemes now in progress, such as Insecticide and Scrub Typhus research, Dietetic Surveys, etc., and the organization of the Institute of Medical Research are excluded from consideration here by the definition of development. It may however be assumed that new research schemes, properly to be regarded as development, will be initiated and a block allocation of capital only has been made for this purpose (C. $100,000; A.R. Nil).

43. The capital cost of this programme and the addition to the annually recurrent expenditure which its adoption would involve are summarized below:

Capital and special expenditure	$16,896,000
Additional annually recurrent expenditure ... ... (including cost of living allowances and expatriation pay).	5,613,000

SOCIAL WELFARE.

44. The list of schemes given below follows the same order as the long term objectives mentioned in paragraphs 31-34 of this Chapter. While it is difficult to assign priority to one scheme over another it may be observed that the existence of a Children and Young Persons Ordinance which is in force but not in full operation, and of a Juvenile Courts Ordinance which is not in operation at all, for the reason that the necessary institutions have not been provided, must bring into special prominence the schemes (x)-(xxxvii) which are intended to make good these deficiencies. A further point to be noted is that in a number of cases the provision made for recurrent expenditure is lower than might be expected. In part this is due to the fact that the necessary staff can be found by departmental adjustments, but a more general explanation is that recurrent expenditure is expected to be largely if not entirely met by public subscription. As has been pointed out in the section dealing with long term objectives, Government intervention in social welfare is likely to increase rather than to diminish the need for private charity and personal service.

45. Estimated figures of ultimate cost and special expenditure, etc. (C) and of the annually recurrent maintenance charges resulting therefrom (A.R.) are given in brackets after each item. Further details are given in Appendix D.

A.—Care of the Aged and Poor.

(i)-(v) The poor in this context are vagrants. Five homes or institutions are planned—one each in Kelantan, in Johore, in Kedah, in Selangor and in Perak. It is necessary to provide separate accommodation for men and women, which enhances the cost (C. $250,000; A.R. $60,000).

B.—Care of Women and Girls.

(vi)-(ix) This service has been neglected and starved of funds. It is now proposed to establish four rehabilitation centres, in Kuala Lumpur, Penang, Ipoh and Malacca, and to provide a specially trained staff (C. $200,000; A.R. $95,000).

C.—Youth Services.

(x)-(xix) Ten "places of safety" are planned throughout the Federation, so that the Children and Young Persons Ordinance may be brought into force. Older, younger and nursery age children will have to be housed separately, and there will have to be some segregation of the sexes, all of which adds to the cost ($660,000; A.R. $300,000).

(xx)-(xxiii) Four "approved schools" under the Juvenile Courts Ordinance are required. Two of these, at Taiping and Sungei Buloh are in operation but require extra funds so that they may be extended and further equipment bought. The buildings at Dusun Tua have still to be acquired while the site of Jeram Mas is at present occupied by the Police (C. $497,000; A.R. $172,000).

(xxiv)-(xxxi) Eight "remand homes" under the Juvenile Courts Ordinance will also have to be established. These will be fairly small units, each housing not more than twenty-five persons (C. $80,000; A.R. $40,000).

(xxxii)-(xxxv) The principal object of the "camp schools" and "hostel" will be to provide for children who are not juvenile delinquents but are in danger of becoming so. The boys' home at Serendah is already in use for boys of this class (C. $468,000; A.R. $214,000).

(xxxvi) Grants-in-aid to youth organizations which are doing valuable work but cannot afford essential buildings or equipment. In a few cases it may also be necessary to help with the salaries of club leaders or assistants (C. $146,000; A.R. $12,000).

(xxxvii) School welfare service. The value of this service has been proved by two experiments, at Kuala Lumpur and Penang. Its object is to "follow up" the work of other Government departments in connection with schoolchildren, e.g., medical and dental examination, probation orders, family difficulties and the like. The work in both experiments was undertaken by voluntary helpers but they need proper equipment and the services of trained officers. There is great need for a service of this kind and given the means it would expand rapidly (C. $75,000; A.R. $54,000).

D.—Rural Welfare.

(xxxviii)-(xlvii) Some working centres have already been set up in depressed areas, to train the inhabitants in new industries. The capital cost is not great and though there has to be supervision the instructors themselves can be moved on as the centres become properly established. It is proposed to open ten new centres (C. $50,000; A.R. $15,000).

(xlviii)-(xcvii) Fifty community centres are planned for kampongs throughout the Federation. They would serve a variety of useful purposes—adult education, youth clubs, women's working parties, library, infant welfare, etc. A properly administered community centre would supply the focus for these and many other useful activities. In the early stages trained officers would be required but eventually the centres would become the full responsibility of the kampong dwellers themselves (C. $50,000; A.R. $15,000).

E.—Specialized Services.

(xcviii)-(xcix) The Children's school and Trade Training Centre which it is planned to establish will only touch the fringe of the problem of blindness, which will continue as in the past to rely mainly on voluntary efforts for its alleviation (C. $225,000; A.R. $183,000).

(c)-(ci) It is expected that an increasing number of patients will be discharged from Leper Settlements, and it will be difficult for them to resume a useful place in the community unless they are given a chance to learn a trade. Two centres are proposed, in the north and south of the country (C. $100,000; A.R. $40,000).

F.—Social Research.

(cii) Surveys to investigate problems of social distress or maladjustment, or to determine the lines on which social services should be developed will be necessary from time to time, and the Department must be provided with funds to meet any expenditure arising in connection with them (C. $35,000; A.R. Nil).

G.—Social Welfare Training Centre.

(ciii) The centre will be staffed by technical officers from Departmental headquarters as far as possible; special staff will be kept to a minimum. It will provide courses for probationers and voluntary workers, refresher courses for members of the Departmental staff, and a centre from which any field work may be supervised (C. $45,000; A.R. $10,000).

46. The capital cost of this programme and the addition to the annually recurrent expenditure which its adoption would involve are summarized below:

Capital and special expenditure	$2,881,000
Additional annually recurrent expenditure ... (including cost of living allowances and expatriation pay).	1,210,000

SUMMARY OF DRAFT 1950-1955 PROGRAMME.

47. No distinction is made between State, Settlement and Federal expenditure in the following figures, which are approximate only. Particulars are to be found in Appendices A-D.

CAPITAL COST (INCLUDING SPECIAL EXPENDITURE).

	Education (para. 37)	Labour (para. 40)	Medical (para. 43)	Social Welfare (para. 46)	Total.
	$	$	$	$	$
1950 ...	2,510,000	—	1,562,000	307,000	4,379,000
1951 ...	9,832,000	95,000	3,694,000	631,000	14,252,000
1952 ...	8,242,000	90,000	3,068,000	742,000	12,142,000
1953 ...	5,090,000	90,000	3,268,000	438,000	8,886,000
1954 ...	5,061,000	90,000	2,762,000	426,000	8,339,000
1955 ...	4,280,000	90,000	2,542,000	337,000	7,249,000
1950-1955 ...	35,015,000	455,000	16,896,000	2,881,000	55,247,000

INCREASE OF ADDITIONAL ANNUALLY RECURRENT EXPENDITURE.

1950 ...	548,000	10,000	13,000	2,000	573,000
1951 ...	1,100,000	225,000	610,000	158,000	2,093,000
1952 ...	2,178,000	255,000	1,535,000	441,000	4,409,000
1953 ...	3,772,000	285,000	2,796,000	692,000	7,545,000
1954 ...	5,221,000	315,000	4,083,000	934,000	10,553,000
1955 ...	6,671,000	335,000	5,103,000	1,105,000	13,214,000
Rising to ...	10,566,000	355,000	5,613,000	1,210,000	17,744,000

PART IV.—CONCLUSION.

48. This Chapter can be briefly summarized by saying that Part III presents a plan for the development of the principal social services during the next six years. The cost of this draft programme will be, very approximately $55 millions in capital expenditure, and $18 millions in additional annually recurrent expenditure—extra, that is to say, to the annually recurrent expenditure of $67 millions which is already, in 1949, being spent on the services in question.

49. The six-year programme is an extract from a more general plan given under the heading of "Long term objectives", in Part II. These objectives will no doubt be modified from time to time but they provide the basic pattern to which any design for developing social services in the future should conform.

50. In Part I the financial circumstances of the country are briefly described, and it is demonstrated that further increases of expenditure on social services will absolutely depend on further increases in the revenue through additional taxation. The figures quoted in paragraph 48 above indicate the order of additional taxation which would be required.

APPENDIX A.

EDUCATION PROGRAMME, 1950-1955.

(All figures are subject to revision. 1950 figures are based on Draft Estimates).

No.	Schemes Proposed.	Capital Expenditure ('000 dollars).							From C.D. & W.	From Loans.	From Federation Funds.	Recurrent Expenditure ('000 dollars).							Notes and Comments.
		1950.	1951.	1952.	1953.	1954.	1955.	Total.				1950.	1951.	1952.	1953.	1954.	1955.	Rising to (Maximum).	
		$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	
	A.—Training Colleges, etc. (x)																		
i	New College for English School Teachers	—	700	1,150	20	—	—	1,870	—	—	1,870	—	—	—	200	350	450	500	
ii	New College for Malay Vernacular Teachers (Men) ..	—	750	410	20	—	—	1,180	—	—	1,180	—	—	100	250	260	270	270	
iii	Extension of College for Malay Vernacular Teachers (Women)	9	260	15	5	—	11	300	—	—	300	8	20	52	57	63	68	68	
iv	New College for Malay Vernacular Teachers (Women)	—	—	830	500	20	10	1,360	—	—	1,360	—	—	—	80	140	200	250	
v	Training Centre for Teachers in Indian Schools ..	—	10	5	20	—	—	35	—	—	35	—	35	53	69	74	74	74	
vi	Normal School for Chinese Vernacular Teachers ..	—	620	20	225	—	—	865	—	—	865	—	—	64	129	189	194	194	
	B.—Primary Education. (y)																		
vii	English Schools	600	1,600	2,700	2,700	2,700	2,700	13,000	—	—	13,000	200	400	780	1,320	1,960	2,680	4,580	
viii	Malay Vernacular Schools	1,044	1,500	1,500	1,500	1,500	1,500	8,544	—	—	8,544	195	270	395	645	1,020	1,485	3,300	
ix	Extension of Junior Technical (Trade) Schools ..	—	240	—	—	—	—	240	—	—	240	—	—	121	242	242	242	242	
x	Hostels	—	210	70	70	60	—	410	—	—	410	—	40	100	130	150	150	150	
	C.—Secondary Education. (z)																		
xi	Extension of Malay College	2	37	322	23	24	42	450	—	—	450	12	25	38	51	65	78	92	
xii	Extension of Malay Girls' College	5	1,005	20	7	757	17	1,811	—	—	1,811	42	72	121	170	219	268	300	
xiii	New Technical College ..	850	2,850	1,150	—	—	—	4,850	4,850	—	—	16	33	99	149	186	186	200	C. D. W. allocation not yet approved
xiv	Pre-University Classes ..	—	50	50	—	—	—	100	—	—	100	—	30	60	65	68	71	71	
	D.—Higher Education (x)																		
xv	Contribution to University	—	—	—	—	—	—	—	—	—	—	75	175	195	215	235	255	275	
	Total ..	2,510	9,832	8,242	5,090	5,061	4,280	35,015	4,850	—	30,165	548	1,100	2,178	3,772	5,221	6,671	10,586	

(x) Federal Expenditure. (y) State or Settlement Expenditure. (z) Federal or State/Settlement Expenditure.

Appendix B.

LABOUR PROGRAMME, 1950-1955.

(All figures are subject to revision. 1950 figures are based on Draft Estimates).

No.	Schemes Proposed. (All Federal Expenditure).	Capital Expenditure ('000 dollars).							From C.D. & W.	From Loans.	From Federation Funds.	Recurrent Expenditure ('000 dollars).							Notes and Comments.
		1950.	1951.	1952.	1953.	1954.	1955.	Total.				1950.	1951.	1952.	1953.	1954.	1955.	Rising to (Maximum).	
		$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	
i	Employment Exchange Service	—	90	90	90	90	90	450	—	—	—	—	200	220	240	260	280	300	
ii	Administration of Employment Code Ordinance ..	—	—	—	—	—	—	—	—	—	—	10	20	30	40	50	50	50	
iii	Administration of Weekly Holidays (Shop) Ordinance	—	5	—	—	—	—	5	—	—	5	—	5	5	5	5	5	5	
	Total ..	—	95	90	90	90	90	455	—	—	455	10	225	255	285	315	335	355	

APPENDIX C.

MEDICAL PROGRAMME, 1950-1955.

(All figures are subject to revision. 1950 figures are based on Draft Estimates).

No.	Schemes Proposed.	Capital Expenditure ('000 dollars).							From C.D. & W.	From Loans.	From Federation Funds.	Recurrent Expenditure ('000 dollars).							Notes and Comments.
		1950.	1951.	1952.	1953.	1954.	1955.	Total.				1950.	1951.	1952.	1953.	1954.	1955.	Rising to (Maximum).	
		$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	
	A.—Training Schools.																		
i	Training School, Penang (x)	87	1,000	200	—	—	—	1,287	1,287	—	—	—	205	410	821	821	821	821	C. D. W. allocation not yet applied for
	B.—Rural Health.																		
ii-iii	Two Welfare Centres, Penang (y)	41	—	—	—	—	—	41	—	—	41	5	5	5	5	5	5	5	
iv-xxviii	Twenty-five Health Centres (y)	—	300	300	300	300	300	1,500	1,200	—	300	—	5	75	275	545	815	1,075	C. D. W. allocation not yet applied for
	C.—Tuberculosis.																		
xxix	Quarters for Hospital, Tampol, Johore (y) ..	57	—	—	—	—	—	57	—	—	57	—	—	—	—	—	—	—	
xxx	New ward for Hospital, Kulim, Kedah (y) ..	66	—	—	—	—	—	66	—	—	66	—	13	13	13	13	13	13	
xxxi-xli	Eleven Clinics (y) ..	—	174	348	348	522	522	1,914	1,914	—	—	—	50	200	400	650	1,050	1,100	C. D. W. allocation not yet applied for
xlii-xliii	Construction of Sanatoria (P. Jerejak and Tg. Bruas) (z)	65	400	300	—	—	—	765	765	—	—	—	100	400	600	1,067	1,067	1,067	C. D. W. allocation not yet applied for
	D.—Specialized Services.																		
xliv	Patients Quarters, Leper Settlement, S. Buloh (x)	50	—	—	—	—	—	50	—	—	50	—	—	—	—	—	—	—	
xlv	Maternity ward, Muar, Johore (y)	60	—	—	—	—	—	60	—	—	60	5	20	20	20	20	20	20	
xlvi	Maternity ward, Klang, Selangor (y)	36	—	—	—	—	—	36	—	—	36	3	12	12	12	12	12	12	
xlvii	New Maternity Hospital with Staff Quarters (y) ..	—	—	100	800	120	—	1,020	—	—	1,020	—	—	—	50	150	300	300	

(x) Federal Expenditure. (y) State or Settlement Expenditure. (z) Federal or State/Settlement Expenditure.

APPENDIX C—(*cont.*).

MEDICAL PROGRAMME, 1950-1955—(*cont.*).

(All figures are subject to revision. 1950 figures are based on Draft Estimates).

No.	Schemes Proposed.	Capital Expenditure ('000 dollars).							From C.D. & W.	From Loans.	From Federation Funds.	Recurrent Expenditure ('000 dollars).							Notes and Comments.
		1950.	1951.	1952.	1953.	1954.	1955.	Total.				1950.	1951.	1952.	1953.	1954.	1955.	Rising to (Maximum).	
		$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	
	E.—Improvement of Hospitals.																		
xlviii	Johore (y)	—																	
xlix	Kedah (y)	658																	
l	Kelantan (y)	74																	
li	Malacca (y)	—																	
lii	Negri Sembilan (y) ..	35																	
liii	Pahang (y)	45	1,800	1,800	1,800	1,800	1,700	10,000	3,000	—	7,000	—	200	400	600	800	1,000	1,200	C. D. W. allocation not yet applied for
liv	Penang (y)	16																	
lv	Perak (y)	39																	
lvi	Perlis (y)	—																	
lvii	Selangor (y)	112																	
lviii	Trengganu (y)	51																	
lix	Federal (x)	70																	
	F.—Research.																		
lx	Unallocated (x)	—	20	20	20	20	20	100	50	—	50	—	—	—	—	—	—	—	
	Total ..	1,562	3,694	3,068	3,268	2,762	2,542	16,896	8,216	—	8,680	13	610	1,535	2,796	4,083	5,103	5,613	

(x) Federal Expenditure. (y) State or Settlement Expenditure.

APPENDIX D.

SOCIAL WELFARE PROGRAMME, 1950-1955.

(All figures are subject to revision. 1950 figures are based on Draft Estimates).

No.	Schemes Proposed. (All Federal Expenditure.)	CAPITAL EXPENDITURE ('000 DOLLARS).							From C.D. & W.	From Loans.	From Federation Funds.	RECURRENT EXPENDITURE ('000 DOLLARS).							Notes and Comments.
		1950.	1951.	1952.	1953.	1954.	1955.	Total.				1950.	1951.	1952.	1953.	1954.	1955.	Rising to (Maximum).	
		$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	
	A.—Care of Aged and Poor.																		
i-v	Five Homes	—	50	50	50	50	50	250	—	—	250	—	5	18	31	43	56	60	
	B.—Care of Women and Girls.																		
vi-ix	Four Centres	—	50	50	50	50	—	200	—	—	200	—	15	40	65	90	95	95	
	C.—Youth Services.																		
x-xix	Ten Places of Safety ..	—	100	140	140	140	140	660	—	—	660	—	30	90	150	210	270	300	
xx	Approved School, Taiping	50	—	—	—	—	—	50	50	—	—	—	5	12	15	15	15	15	C.D.W. allocation not yet applied for
xxi	Approved School, D. Tua	211	—	—	—	—	—	211	211	—	—	—	10	35	52	52	52	52	
xxii	Approved School, S. Buloh	—	—	196	—	—	—	196	196	—	—	—	—	8	30	65	85	85	
xxiii	Approved School, J. Mas	—	—	—	—	—	40	40	40	—	—	—	—	—	—	—	10	20	
xxiv-xxxi	Eight Remand Homes ..	—	80	—	—	—	—	80	80	—	—	—	10	35	40	40	40	40	
xxxii	Camp School, Telok Ayer Tawar	—	—	198	—	—	—	198	198	—	—	—	—	20	60	90	90	90	
xxxiii	Camp School, Morib ..	—	—	—	80	—	—	80	80	—	—	—	—	—	10	25	30	30	
xxxiv	Boys Home, Serendah ..	—	136	—	—	—	—	136	136	—	—	—	20	50	60	60	60	60	
xxxv	Hostel—Kuala Lumpur ..	—	—	—	—	54	—	54	54	—	—	—	—	—	—	15	25	34	
xxxvi	Clubs Grants-in-Aid ..	46	20	20	20	20	20	146	46	—	100	2	4	6	8	10	12	12	
xxxvii	School Welfare	—	10	12	15	18	20	75	—	—	75	—	3	14	20	30	42	54	
	D.—Rural Welfare.																		
xxxviii-xlvii	Ten Working Centres ..	—	10	10	10	10	10	50	—	—	50	—	3	6	9	12	15	15	
xlviii-xcvii	Fifty Community Centres	—	10	10	10	10	10	50	—	—	50	—	3	6	9	12	15	15	

* At present. *See* however recommendation (*d*) in Legislative Council Paper No. 41 of 1949.

APPENDIX D—(*cont.*).

SOCIAL WELFARE PROGRAMME, 1950-1955—(*cont.*).

(All figures are subject to revision. 1950 figures are based on Draft Estimates).

No.	Schemes Proposed. (All Federal Expenditure.)	CAPITAL EXPENDITURE ('000 DOLLARS).							From C.D. & W.	From Loans.	From Federation Funds.	RECURRENT EXPENDITURE ('000 DOLLARS).							Notes and Comments.
		1950.	1951.	1952.	1953.	1954.	1955.	Total.				1950.	1951.	1952.	1953.	1954.	1955.	Rising to (Maximum).	
		$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	
	E.—Specialized Services.																		
xcviii-xcix c-ci	Blind School and Centre ..	—	85	30	20	51	39	225	—	—	225	—	35	71	98	115	143	183	
	Two Leper Rehabilitation Centres	—	35	15	35	15	—	100	—	—	100	—	5	20	25	40	40	40	
	F.—Social Research.																		
cii	Surveys	—	5	6	8	8	8	35	—	—	35	—	—	—	—	—	—	—	
	G.—Training.																		
ciii	Social Welfare Training Centre	—	40	5	—	—	—	45	—	—	45	—	10	10	10	10	10	10	
	Total ..	307	631	742	438	426	337	2,881	1,091	—	1,790	2	158	441	692	934	1,105	1,210	

* At present. *See* however recommendation (*d*) in Legislative Council Paper No. 41 of 1949.

CHAPTER II.

The Development of National Resources and Utilities in the Federation of Malaya.

CHAPTER II.

THE DEVELOPMENT OF NATIONAL RESOURCES AND UTILITIES IN THE FEDERATION OF MALAYA.

PART I.—INTRODUCTION.

51. In this second Chapter is set out a programme for the future development of the national resources and utilities in the Federation of Malaya through the agency of Government. Development through private agencies will be considered separately in the Chapter which follows. Here, under the heading of "resources" will be considered the animal, mineral and agricultural wealth of the country, including the timber of its forests and the fish in its seas. The word "utilities" covers such things as systems of communication by land, sea or air, facilities for transmitting the spoken or written word by radio, post or land line, supplies of light, power or water, and provision of drainage, irrigation or other constructional works of a public nature, including housing. Resources and utilities are grouped together, partly for convenience and partly because of a natural connection between, on the one hand, schemes designed to increase the productivity of the country and, on the other, projects for creating or improving the material conditions in which productive work is performed. Improvement in the material conditions or "utilities" specified above is of course complementary to improvement of the social services, the development of which formed the subject of the preceding Chapter.

52. As on the former occasion, the "long term" objectives in this field will be outlined in Part II while a much more detailed draft programme of development in the six years 1950-1955 will be presented in Part III. Part IV will contain a summary of the main conclusions, and figures will once again be relegated as far as possible to an Appendix.

LONG TERM OBJECTIVES.

53. Increase of productivity is not an end in itself, but the means whereby man may secure for himself the principal comforts of his material existence, health, knowledge, leisure and freedom from want and care. Nowhere in the world are these comforts within the reach of all but, other things being equal, they tend to occur in countries which are prosperous more readily than in those which are not. Before the war Malaya was a prosperous country, indeed by the general standard it was an extremely prosperous one. During the war it suffered much physical destruction, the repair of which swallowed up the greater part of its accumulated savings. A far more serious loss, since it can never be made good, was that of the lives of some of its best citizens, and with this may be coupled the loss by many thousands of children of their educational opportunities. Partly for these and partly for external reasons a dangerous threat to the security of the country has now arisen, which is only mentioned here because the cost of its suppression has had to be made a first charge on the resources of the country, to the temporary exclusion of almost all expenditure on development. Finally, the basis of Malaya's exceptional pre-war prosperity has largely disappeared, in that the value of its exports to the markets of the world has not increased in the same proportion as has the value of the goods it imports. It is by no means certain that this balance will right itself as time goes by: indeed it may never do so.

54. Such a combination of disadvantageous circumstances is by no means peculiar to Malaya. Many other countries are faced with equal if not greater difficulties and those of them which have the energy and will to do so are taking thought, as this country must also do, of where to save and where to spend so that capital, machinery and labour may be used to bring about a recovery in the shortest space of time. In other words they have to plan ahead, far more carefully than was necessary in time of prosperity. It is recognized that the very word "planning" is suspect; being always associated with hard times it is sometimes regarded as the cause rather than the effect of austerity. Furthermore, in non-democratic countries where planning has been very much in evidence the results have not always been particularly striking. In such countries, however, plans are imposed from the top, whereas in democratic countries they are adopted only after popular consent has been obtained, and are modified later as opinion demands it. In such circumstances plans have every chance of succeeding. The consent must of course be real and based on knowledge and understanding of the facts. It must also be an active consent which will not falter under the stress of difficulties which arise later and were not foreseen.

55. In this connection it cannot be emphasized too strongly that what is done or not done in the next ten or twenty years in Malaya will determine for better or worse its position in the world economy (using that word in its broadest sense) of fifty to sixty years ahead. The economy of a country is not like a machine which can be suddenly thrown into reverse gear, and capital once invested can only be recovered slowly, if at all. The present generation is able to mould or mar the shape of things to come; its responsibility for the future is thus heavy and unavoidable.

56. In this and the next Chapter, the following main assumptions have been made regarding long term planning:

(*a*) that Malaya in the past has been too dependent on a limited range of products. It would be prudent to broaden the basis of its economy;

(*b*) that the emphasis should be on promoting those types of economic activity, whether primary or industrial production, in which Malaya by reason of its climate, soil, geographical situation, and technical abilities of its inhabitants is best fitted to engage. Goods so produced are more likely to be saleable at a competitive price in world markets over a long period than are goods which can only be produced under some form of protection;

(*c*) that Malaya should aim at producing more of the food that it consumes;

(*d*) that so far as possible there should be even development throughout the area;

(*e*) that such development should be planned to increase and not to diminish the total natural wealth of the country;

(*f*) that in every plan for new development there should be embodied a scheme for the training of local staff. This is as essential economically as it is politically.

While these considerations (all of which, except the last two, are to some extent contradictory) do not by themselves suggest what sorts of development schemes should be put in the foreground of choice, they do at least furnish criteria by which the relative values of the various aims listed in Part II of this paper may be appraised.

THE 1950-1955 PROGRAMME.

57. The reasons for choosing a period of this duration were discussed in the earlier Chapter on the Development of Social Services (para. 7). They apply equally to the present case. So also does the remark that there must be general agreement regarding the long term objectives to be pursued, before the shorter programme can be considered.

58. With regard to this shorter programme, certain criteria additional to those mentioned in paragraph 56 above have to be borne in mind. These are as follows:

(*a*) that Malaya should aim to make the maximum contribution that its resources permit to the early attainment of a balance in the external payments of the sterling area.

It is nobody's choice that the world is divided into a number of different currency "blocs", and the quickest way of eliminating these is by attaining a balance of payments between them.

(*b*) that those projects which yield an early return are to be preferred, unless the return on alternative projects is particularly high.

The reason for this will be apparent from the discussion of "finance" in paragraphs 60-63 below.

(*c*) that those projects which will not involve heavy annually recurrent costs either of staff or of maintenance are to be preferred, unless the importance of alternative projects is particularly great.

The reason for this too will appear in the course of paragraphs 60-63 below.

(*d*) that schemes likely to make heavy demands on trained staff or materials in short supply should be deferred for the time being.

The reason for this is given in the next paragraph.

STAFF AND MATERIALS.

59. (*a*) It is generally known that it has been difficult to make up the numbers of trained staff since the war, but it is not always appreciated how serious the shortage is. On December 31st, 1949, approximately one quarter of the senior pensionable posts in the "resources" and "utilities" departments were vacant. In detail the position was as follows:

(i)	Agriculture	21	posts vacant out of	50
	Fisheries	5	,, ,,	8*
	Forestry	3	,, ,,	41
	Geological Survey	2	,, ,,	9
	Mines (excluding Machinery)	8	,, ,,	23
	Veterinary	8	,, ,,	17
	Co-operative Societies	1	,, ,,	7
	Information Services (Public Relations)	Nil	,, ,,	7
(ii)	Broadcasting	8	,, ,,	41*
	Civil Aviation	6	,, ,,	26*
	Drainage and Irrigation	11	,, ,,	34
	Film Unit	1	,, ,,	4
	Marine	1	,, ,,	9
	Meteorology	6	,, ,,	15*
	Posts	3	,, ,,	32*
	Road Transport	1	,, ,,	23
	Telecommunications	10	,, ,,	60*
	Public Works	48	,, ,,	148*

*Figures include Singapore.

Recently there have been signs of an easing of the situation although recruitment to posts for which long professional training is necessary is still difficult. The insufficiency of Public Works Department senior officers is particularly noteworthy, and special attention is drawn to the effects of this shortage on the development programme; in paragraph 199 below.

(*b*) With regard to materials a shortage of certain items is likely to continue in 1950 and may persist into 1951. Even when materials are available there may be currency difficulties in the way of obtaining them. These factors also will affect the programme of development, though not to a marked extent.

FINANCE.

60. The general financial background of a development programme has already been discussed at considerable length in the earlier paper on the Development of Social Services (paragraphs 10-16). The reader is asked to refer to these paragraphs, and to regard the remarks which follow as applying to the problems of developing the national resources and utilities in particular, rather than to the problem of development generally.

61. It has been suggested, in para. 58 (*b*) above, that it is desirable, in deciding which projects should be regarded as suitable for execution as part of the 1950-1955 programme, to give preference to those which will yield an early return. To appreciate the force of this suggestion it will be helpful to make the assumption that all capital expenditure produces a return of some kind, and that the difference between one form of investment and another consists mainly in the length of time before this return is received. At one end of the scale is investment in, say, a system of higher education, the return from which valuable though it is may only begin to be realized in twenty or thirty years time. At the other end is investment in, say, a house which begins to produce a return as soon as it has been built.

62. Pursuing this argument further, it will be apparent that certain forms of capital investment which from a long term point of view are highly remunerative—e.g., a new port, or a road opening up undeveloped country, must be regarded as competing with the social services (e.g., the system of higher education mentioned above), for the strictly limited share of the capital resources of Government which can be spared from the urgent task of earning an income. This competitive aspect of the situation is particularly important at the present time, when the total amount of capital which can be made available for projects which will produce no immediate return is unusually small, and the need for rehabilitation and development of the social services is exceptionally great. In these circumstances it is more prudent to invest capital in a number of small developments which do not require large and expensive additions to the existing systems of transport and communication, rather than in a few more ambitious projects which are likely to necessitate the expansion of basic facilities on a big scale.

63. As regards the further suggestion in paragraph 58 (*c*) that preference be given to those projects which do not involve heavy annually recurrent costs of staff or of maintenance, the reason for this is to be found in the vital necessity of rebuilding the financial reserves of the country. If these reserves are inadequate, and a slump arrives, the country will have to restrict all its services, suspend its building operations, and reduce its staff, all for the lack of sufficient funds to carry it through until prosperity returns. The only alternative, which is to call for external financial assistance whenever economic difficulties are encountered, is a course of action to which no country desirous of self-government would willingly resort.

PART II.—LONG TERM OBJECTIVES.

NOTE.—This Part is divided into the following sections:

Resources.			Utilities.			Utilities.		
Agriculture	paras.	64- 70	Broadcasting	paras.	122-130	Marine	paras.	166-171
Fisheries	,,	71- 76	Civil Aviation	,,	131-137	Meteorology	,,	172-174
Forestry	,,	77- 87	Drainage and Irrigation	,,	138-149	Posts	,,	175-180
Geological Survey	,,	88- 95	Electricity	,,	150-154	Railway	,,	181-185
Mines	,,	96-103	Film Unit	,,	155-160	Road Transport	,,	186-189
Veterinary	,,	104-111	Housing	,,	161-163	Telecommunications	,,	190-198
Co-operative Societies	,,	112-114	Land Settlement	,,	164-165	Public Works	,,	199-207
Information Services	,,	115-121						

AGRICULTURE.

64. In discussing Malayan agriculture it is usual to distinguish three main types of enterprise—large estates of over 500 acres, medium-sized estates of 50 to 500 acres and small holdings of less than 50 acres, but mostly much smaller. This is a useful division since it corresponds fairly well with differences of agricultural practice or economic resources. Generally speaking, while both the large and the medium-sized estates are engaged in the production of rubber, coconuts, palm-oil or tea (in order of importance) the former are usually incorporated as companies while the latter are more often privately owned. Small holdings on the other hand, the majority of which are of about five acres, are for the most part family concerns, dependent on rice, or on rubber or coconuts, or on pineapples, or on a combination of crops.

65. This necessarily brief summary of the principal forms of agriculture and of the units into which the industry is divided provides an indication of the main problems with which the Department has to contend and leads the way to a definition of its long term objectives. These may be labelled:

A. Diversification of production.

B. Intensification of yield.

C. Research.

D. Agricultural Education.

The order of mention does not imply any priority of importance as between one item and another. All of them are important, and collectively they are of vital importance, since Malayan prosperity, past, present or future is founded upon agriculture.

66. Diversification of production (Item A) is even more necessary than would appear from the list of crops which has been mentioned, since the acreage under rubber is more than that under all the others put together. The fatal weakness of relying to this extent on a single crop (whatever it may be) is now generally recognized, but the difficulties—financial, economic and agricultural—in the way of full diversification are such that this must be regarded as a problem only capable of gradual solution over an extended period.

67. The need for intensification of production (Item B) is equally apparent. The successful findings of past research—of which clonal rubber seed and improved strains of padi are familiar examples—are available for

all but are far from fully used. The reasons for this are partly economic, but ignorance is also a weighty factor. There is no doubt that the traditional method of extending knowledge more widely, by the establishing of stations up and down the country where the farmer can obtain advice and, even more important, see with his own eyes the results of improved methods, is the right one, and should be employed even more widely in the future. High yielding planting materials are of course only one of many ways in which cultivation may be intensified. Improved cultivation methods, applied knowledge of disease control, etc., may have equally far reaching results.

68. Just as research (Item C) has been responsible for the major steps forward in agricultural practice made in the past fifty years, so also it provides the knowledge which will inform the further advances to be made in the future. It is the special function of the Department of Agriculture to conduct such research, just as it is the function of the Industry to apply it. Each new crop, or improved strain of seed, or invention of agricultural machinery is the result of years of research and of an infinite number of experiments. As one example of work waiting to be done may be mentioned experiments in grasses and pasturage which, if successful, might lead to revolutionary advances in the field of animal husbandry and mixed farming. Neglect of research means in fact a cutting off of the knowledge from which all future development will flow. Research must therefore be continous and expanding and not regarded as a form of extravagance to be abandoned at the first hint of a financial recession. In the case of rubber, continuity of research has been assured by the establishment of a Rubber Research Institute and it is possible that similar means may have to be sought of safeguarding research on other major crops also.

69. An extension of the facilities for agricultural education (Item D) is the corollary of the long term objectives already mentioned. The College of Agriculture at Serdang which supplies these facilities not only for the Federation of Malaya but for other Commonwealth territories in South East Asia is already inadequate to accommodate the numbers applying for admission. A fifty per cent. expansion is probably sufficient to fulfil needs in the near future; further developments can only be considered in the light of the circumstances prevailing at the time.

70. The estimated annually recurrent expenditure of the Department of Agriculture in 1950 is (including provision for cost of living allowance and expatriation pay) approximately $3.38 million. To carry out the programme outlined above would cost approximately—

$0.92 million additional annually recurrent expenditure (including provision as above).

$1.70 million in capital and special expenditure.

FISHERIES.

71. As an index of the value of the fishing industry to the Malayan economy it may be mentioned that in 1948 the total quantity of marine and fresh water fish used for all purposes and taken from all sources was estimated to be 128,690 tons, worth $109,408,000. As an index of its problems there are the facts that the population of the Federation is calculated to consume only one third of the amount of fish required to maintain a balanced diet, that the average catch of the Malayan fisherman

Fish drying, Kuala Trengganu.
[Public Relations.

Public Relations.]

Measuring rubber latex.

works out at less than one twentieth of the average catch of the fisherman in America, and that the occupation of fishing is one of the lowest rewarded in the country. In the past the fishing industry and trade of Malaya have received scant attention; even in 1940 the senior staff of the Department consisted of only two officers. Post war there has been a change in that the contribution which an efficient industry and well organized trade could make to the economy of the country it now fully understood. Materially, however, the Department is still poorly equipped, lacking offices, laboratories and fishing vessels, and possessing only the nucleus of a library.

72. The principal needs of the Department expressed in logical sequence (though not necessarily having to be supplied in the same order) are as follows:

A. Research.

B. Application of Research.

C. Expansion of staff.

73. Research (Item A) would be of two kinds. There is first research into fundamental questions of productivity and conservation of fish stocks; the problems of marine and fresh water fisheries being dealt with separately. Secondly there is research into technological processes. The details of the research programme are described in more detail in Part III; if this programme appears unexpectedly large the reason is simply that so much lost time has to be made good. Rapid expansion and improvement of fisheries would be impossible on the basis of existing knowledge and of the primitive equipment now in use.

74. The second stage, in which the results of research are given practical application (Item B) also deserves the attention of the planner. There is not merely the immense problem of almost completely re-equipping the industry, but also that of training the fisherman in modern techniques and business methods. As regards the former, it is to be hoped that the necessary capital will not in most cases have to be provided by Government. Responsibility for the latter, however, cannot be avoided.

75. Finally an expansion of staff (Item C) is a natural consequence of the developments already mentioned and is obviously necessary before the Department can make any impression on the immense problems confronting it. A minimum of four senior field staff is required—two on the east coast and two on the west. Their functions would be the administration and investigation of the industry and trade through the powers conferred under Fisheries Ordinances, and the practical extension of the results obtained from research through training and demonstration.

76. The estimated annually recurrent expenditure (Federation share only) of the pan-Malayan Department of Fisheries in 1950 is (including provision for cost of living allowance and expatriation pay) approximately $333 thousand. To carry out the programme outlined above would cost approximately—

$0.56 million additional annually recurrent expenditure (including provision as above).

$5.7 million in capital and special expenditure.

FORESTRY.

77. Forestry in Malaya has two main functions. First, the maintenance of a sufficient area of land under forest to prevent erosion, silting and flooding, to maintain water supplies and to preserve climatic conditions, especially rainfall ("Protection" forests). Second, to ensure to the inhabitants of the country, under a system of sustained yield, an adequate supply of cheap timber, firewood and other forest products in perpetuity ("Productive" forests). In Malaya, which is blessed with an abundance of well forested land, the second head also includes the maintenance of a remunerative export trade in timber and minor forest produce. The value of this trade to the country in 1949 was in the region of $10 million.

78. Financially, "protection" forests are a liability but their maintenance is essential to agriculture and their value to the country cannot be assessed in terms of dollars and cents. "Production" or "commercial" forests constitute one of the country's major assets. With the exception of the three years 1931 to 1933 forestry in Malaya has always shown a profit. The 1948 surplus of revenue over expenditure was $2,341,542, the 1949 surplus will be of the same order and given anything like normal conditions an annually recurrent surplus of between two and three million dollars may be expected.

79. With that background in view the more immediate needs of scientific forestry in Malaya may be set forth as follows:

A. Expansion of training facilities.

B. Ample provision for the silvicultural treatment of forest reserves.

C. Reafforestation, including reclamation of degraded soils.

D. The construction of forest roads.

E. Housing of field staff.

F. Further provision for research and experiment.

G. Commercial and semi-commercial development.

80. Trained staff (Item A), both senior and subordinate, is an essential if the vast forest wealth of the country is to be utilized to the best advantage.

81. Silviculture (Item B) is the foundation and corner stone of forestry in Malaya: in the broad sense silviculture means the management of forests so that they will give a sustained yield for ever. This entails treatment to ensure that regeneration (i.e., seedlings and saplings) of the desired species is on the ground before the mature overwood is felled and turned into the cash it represents. Such treatment needs to be undertaken departmentally and costs money.

82. Reafforestation (Item C). Although in tropical rain forest it is usually cheaper to secure natural regeneration by silvicultural treatment (*see* Item B), it is nevertheless sometimes both necessary and desirable to undertake reafforestation by artificial means, i.e., by planting. No country can afford to disregard the possibilities of exotics and so far as Malaya is concerned these include Teak, the Eucalypts and Mahogany. When large scale reclamation of degraded soil is undertaken, after research and experiment has shown the most effective method, the planting of exotics will probably prove to be the final stage.

83. The construction of roads (Item D) and other extraction facilities is necessary to tap hitherto inaccessible areas of forest. A first-phase programme of forest road construction covering the five year period 1948 to 1952 has already been approved. Work, however, has been slowed down by banditry and existing provision will probably run to the end of the year 1954. Further provision will be required thereafter until the programme is completed.

84. Housing of field staff, particularly in the forest, leaves much to be desired (Item E).

85. Research (Item F). Without silvicultural research the professional officer is handicapped in the field. Sooner or later the problem of rehabilitating the very large areas of degraded soils will have to be tackled but the cheapest and best method of doing this still has to be ascertained by research and experiment. Timber research on the mechanical properties of Malayan timbers is still in its infancy. Nothing has yet been done in the fields of pulp, plywood or plastics. Constant research into sawmilling, seasoning, preservation and grading methods is necessary if Malayan timbers are to be put to the best use and the export trade increased.

86. A number of commercial and semi-commercial developments (Item G) should be undertaken by Government to give the lead to private enterprise. These include the manufacture of fibre-board and paper pulp, the erection and demonstration of modern sawmilling plant with ancillary wood-working units, and the selection, storage and seasoning of timber for use in Government buildings.

87. The estimated annually recurrent expenditure of the Forest Department in 1950 is Federal $0.5 million, State $2.3 million, total $2.8 million (including provision for cost of living allowances and expatriation pay). To carry out in full the programme outlined above would cost approximately—

$3.5 million in annually recurrent expenditure (including provision as above)

$6.25 million in capital and special expenditure.

GEOLOGICAL SURVEY.

88. In a country such as Malaya, endowed with great mineral wealth, it is essential that the maximum possible use be made of this source of revenue, which, acre for acre, can yield generally a much higher return than any other form of development. Since the mineralized areas are limited in extent (the area alienated for mining at the present time amounts only to 1.68 per cent. of the entire Federation) it is necessary that their location and boundaries be determined early so that no large area of land is alienated for other purposes prior to the assessment of its mineral potentialities. Detailed geological work can provide a basis for a reliable estimate of the mineral resources and until this knowledge is available no sound land policy can be formulated.

89. In Malaya, it is natural that special emphasis should be placed on the contribution of the Geological Survey Department to the discovery of mineral deposits and the delineation of mineralized areas. It has to be remembered, however, that geology contributes to the solution of many of the problems which arise in agriculture, forestry, drainage and irrigation and engineering.

90. The principal long term objectives of the Department may be stated as follows:

A. Provision of basic geological information.

B. Assistance to the mining industry.

C. Advice on land utilization and siting problems.

D. Supply of information on geological matters to the general public.

91. The value of basic geological information (Item A) regarding the whole of the Malay Peninsula and its territorial islands is indisputable and the obtaining of this knowledge must be regarded as the primary duty of the Geological Survey Department. In addition to detailed geological maps, there would also be published district memoirs and special reports upon the areas examined.

92. The Department can serve the mining industry in a variety of ways (Item B). The chief of these is to obtain by detailed geological surveying the information which enables mineralized areas to be determined. It should also be able to obtain, by prospecting, information on mineral occurrences which will assist in the delineation of selected mineralized areas not open to prospecting by commercial interests. Lastly, it provides facilities for the examination of samples including chemical assays and analyses, and gives assistance on ore-dressing problems. In all these activities it works in close collaboration with the Mines Department.

93. The problems of how to utilize land to the best advantage (Item C) require for their investigation a full knowledge of the soil and the rocks. The detailed mapping of rocks yielding productive soils is of particular value to agriculture. The best siting of water reservoirs, heavy industrial plants, buildings and other engineering projects cannot be assured without reference to geological advice.

94. The Geological Survey Department must also be in a position to advise industry in regard to the selection for marketing of raw materials of a geological nature (Item D).

95. The estimated annually recurrent expenditure of the Geological Survey Department in 1950 is (including provision for cost of living allowance and expatriation pay) approximately $0.25 million. To carry out the programme outlined above would cost approximately—

$0.6 million in additional annually recurrent expenditure (including provision as above).

$2.2 million in capital and special expenditure.

MINES.

96. The principal function of the Department of Mines is to undertake the control of all phases of mining, in accordance with the provisions of the mining laws, from the search for mineral-ores to the sale of the mineral-product. Its duties and responsibilities cover prospecting, mine-operation, and recovery, treatment and marketing of the ore, in addition to advisory duties in connection with the formulation and implementation of land alienation and mining policies. The Department is called upon to propose and put into practice schemes to meet any changes in conditions drastically affecting the Mining Industry. Such duties involve an intimate knowledge of mining engineering and of the economics of

the mining industry in the Federation of Malaya. This industry is large and complex, and makes an important contribution to the national economy. However, to some extent, it does conflict with other interests and industries. Therefore, if planned development is to succeed, and the Mining Industry is to continue to make its major contribution to the country's prosperity, the Mines Department must be in a position to advise and direct so that the development of the national mineral resources will be integrated with other development projects.

97. The ultimate aim of the Department is to ensure the conservation of minerals and land so that there is no waste of irreplaceable resources. At the same time it seeks to help existing mines to increase their recovery of mineral ores. The potential value of such help may be gauged from the fact that on the basis of 1940 rate of production and the present price of tin metal, an increase in the percentage recovery of only one per cent. would mean that additional tin-ore valued at $3,800,000 would be produced. Though four separate development aims may be defined, it should be noted that in actual practice they would not, for efficiency and practical reasons, be pursued independently of each other. These aims are:

A. The estimation and valuation of ore reserves.

B. Investigations concerning mine-operation, ore-excavation, recovery and treatment.

C. Education in mining methods.

D. The collection and dissemination of technical information on modern mining methods and processes.

98. An estimate of the ore reserves (Item A) is one of the first steps in the planning of a stable economy for a country so largely dependent on mining. It must be borne in mind that the word "reserves" is used relatively, i.e., referring not merely to the extent and location of the ore deposits but to their workability under varying physical and economic conditions. Such information would permit the forward planning of land utilization projects in mineralised areas, as well as the siting, etc., of public utilities (e.g., an electricity grid system) largely dependent on mining activities, and would prevent the further useless and costly blanketing of ore deposits by schemes directed to other purposes. It would aid the rapid development of low-grade ores in times when they are urgently required for special reasons, and would provide a sound basis for a decision as to Malaya's part in any international economic agreement affecting tin.

99. At the same time investigation should be made into the general questions of ore-excavation, recovery and treatment (Item B). This work would involve research into fundamental problems related to mining, including the re-conditioning of mining land and the development of potential mining areas. Such research would make it possible to give much needed advice to mining undertakings, in particular to the small scale operators who separately are not in a position to experiment with or modify out-of-date and wasteful methods, and to Government in cases where there is an apparent conflict between mining and other interests. The effect would be to increase substantially the total amount of ore to be recovered in the future from the working of the mineral deposits of the country, to prolong the life of the mining industry by making possible the working of lower grade ground, and to improve the efficiency of each single unit in the industry, and consequently its ability to stand up against competition. It would also do much to bring about the reconstitution of old worked-out

mining land and assist the development of now useless land in that if the latter were found to contain ore, mining could be integrated as the first step in large scale development projects and the revenue so obtained made available to finance subsequent stages of the projects.

100. Educational facilities (Item C) are required for the training in mining of personnel to be employed in the Industry or by the Department. Such specialized training is not available in the country at present. The objective would be to raise the standard of supervision and management of local mines by the certification of mining officials.

101. The technical information on modern mining methods and processes (Item D) can partly be collected from records in the possession of the Mines Department. But it also includes the recording of the results of mining experiences and practices in all mining fields, where these are likely to be adaptable to Malayan mining conditions. This information would be disseminated to the local Mining Industry.

102. The proposals advocated above cannot be adopted by the Department as it is organized at present. After re-organization, however, it should be possible for the Department to undertake these extra responsibilities with a small increase in personnel. The form of re-organization envisaged would be the creation of a separate branch of the Department to deal with the special investigations and development tasks mentioned above. The staff of this branch of the Department would be additional to those at present carried on the establishment.

103. The estimated annually recurrent expenditure of the Mines Department in 1950 is (including provision for cost of living allowance and expatriation pay) approximately $0.97 million. To carry out the programme outlined above would cost approximately—

$0.7 million in additional annually recurrent expenditure (including provision as above).

$2.3 million in capital and special expenditure.

VETERINARY.

104. A healthy and flourishing livestock industry is without doubt essential to the rural economy of Malaya. Not merely does the existence of such an industry make it possible to maintain the nutritional standards of the population at a satisfactory level and to provide from local resources a large part of the meat, milk and other animal products required for local diets, but it also ensures a sufficiency of working animals for tillage of agricultural land, particularly rice-producing areas, and helps to maintain the fertility of the soil. All veterinary activities aim, therefore, either directly or indirectly at conserving and increasing the livestock resources of the country.

105. More particularly these aims can be enumerated as follows:

A. Improvement of grazing grounds.

B. Improvement of stock.

C. Control of disease.

D. Research.

E. Training.

106. Regarding Item A, it may be recalled that the development of new feeding techniques revolutionized European stock farming in the eighteenth century. It is by no means impossible that corresponding developments in technique might make it possible for Malaya to carry a very

much larger livestock population than is possible at present. This, however, is an agricultural problem, which has been mentioned in paragraph 68. In the meanwhile there is an undoubted need to improve existing grazing grounds and to provide new ones in places where they are wanted.

107. Improvement of stock (Item B) is carried out with the object of making the individual animal more productive of meat, milk, etc., or, if it is used for draught purposes, of making it stronger and healthier. Generally speaking the immense benefits which can be obtained as a result of selective breeding are quite unappreciated by the majority of livestock owners in this country.

108. The necessity for adequate control of disease (Item C) speaks for itself. The serious epizootics which have decimated flocks and herds in other tropical countries are almost unknown in Malaya but with an expanding livestock population the threat of them would become more serious, and adequate facilities for control and treatment must be available.

109. Research (Item D) in so far as veterinary problems in Malaya are concerned means applied research or extension research (i.e., as opposed to fundamental research). It covers investigations into the fields of health, physiology, disease, breeding, nutrition and sanitation.

110. Training (Item E) will enable the Malayan student to obtain the foundations of knowledge of veterinary science and livestock husbandry within the country. At present the possibilities of doing this are extremely limited.

111. The estimated annually recurrent expenditure of the Veterinary Department in 1950 is (including provision for cost of living allowance and expatriation pay) approximately $.45 millions. To carry out in full the programme outlined above would cost approximately—

$.42 millions in additional annually recurrent expenditure (including provision as above).

$9.0 millions in capital and special expenditure.

CO-OPERATIVE SOCIETIES.

112. The inclusion of Co-operative Societies in the section of the plan dealing with the development of resources calls for a word or two of explanation. Setting aside for a moment the specialized meaning which the phrase has acquired for itself, a "co-operative society" is really any community whose members have felt the same economic needs and have joined together to satisfy them collectively better than they could individually. In this sense all human society is co-operative. With the growth of material progress following on the development of a country's resources, there is need for a higher level of co-operation also. It is precisely the lack of this co-operation which, more than any other single factor, impedes the development of this country and deprives its inhabitants of the benefits from such development which are their due. Development of the Malayan economy and an increase in co-operation are therefore inseparable.

113. In the commonly accepted sense, a Co-operative Society is brought into being whenever a group of people has some particular form of need which they feel can best be satisfied by co-operative action. It is the business of the Co-operative Societies Department to ascertain these needs, and to teach the people concerned how by organizing themselves they can fulfil them. The Department is not of course a revenue earning one, but it has a very important function to perform in raising the general prosperity of

the country and the standard of living of its people. Its long term objective is to build up a strong co-operative movement capable of running itself without Government aid. This is looking far ahead; in the formative years the greater the trained staff that Government can afford the more rapidly will the above goal be reached. Expansion is entirely dependent on the number of trained personnel, their mobility, capacity and energy—together with the willingness of the people to listen to their advice.

114. The estimated annually recurrent expenditure of the Co-operative Societies Department in 1950 is (including provision for cost of living allowance and expatriation pay) approximately $.38 million. To carry out the programme outlined above would cost approximately—

$55 thousand in additional annually recurrent expenditure (including provision as above).

$5 thousand in capital and special expenditure.

INFORMATION SERVICES.

115. Like the previous item, information services may appear somewhat out of place in the section of a plan dealing with the development of resources. They have been included for the same reason which is that in very much the same way as co-operative societies they supply a link between the technique of the expert on the one hand and the practical needs of the ordinary individual on the other. Contact of this kind may be established in a number of ways, some fairly simple and others more highly specialized. Broadcasting and Films which come into the second category will be dealt with separately in later sections of this chapter. In this section there will be mentioned only the more direct methods which have been developed by the Department of Public Relations, as it has hitherto been called. In the long run all the means of imparting information which are at the disposal of Government require to be closely co-ordinated so that they can be used efficiently and economically to fulfil a common purpose.

116. The duty of Government to provide the means for social, economic and political betterment of its citizens is not, as is sometimes supposed, a novel conception. It is, however, one that has greatly developed in modern times, and this has necessitated a corresponding development of information services to make the policy effective. For children, the school organization can be used to impart the lessons of public health and hygiene, the knowledge of crafts and trades, the duties of citizens towards each other and in international relations. For adults the form of approach must be varied, but is no less necessary—unless it be unwarrantably assumed that only those who attend school have a right to education. The following methods are employed:

A. Press services.

B. Publications.

C. Aural media.

D. Visual media.

117. The Press is free, and should remain so. For this very reason it constitutes one of the most effective media for disseminating information. The extent to which it already makes use of the Government Press service (Item A) is little realized. Some 350 statements a month are issued, but while 85-95 per cent. of these are used by the English language press and about 60 per cent. by the Malay press, a far smaller proportion is used by papers written in the Chinese and Indian language, entirely on account of translation difficulties.

Padi field in Pahang.

[Public Relations.

A herd of buffaloes.

[Public Relations.

118. There is a very serious lack of publications (Item B) other than English, on subjects of importance to the adult and adolescent Malayan population. Concurrently there is an intense desire for knowledge and information which there are at present no means of satisfying, even among the literate section of the population.

119. The use of aural media (Item C) has proved a most effective method of disseminating information on a wide variety of subjects, especially among the rural population. The number of mobile Public address and Cinema units available is far too small to be able to visit with sufficient frequency even those areas which are accessible to transport. Broadcasting, which is another of the aural media, will be dealt with under a separate heading.

120. For the sake of completeness visual media (Item D) should also be mentioned. Posters, film strips, etc., come within this category, but the most important of them are films which will be considered separately.

121. The estimated annually recurrent expenditure on information services (Public Relations) in 1950 is (including provision for cost of living allowance and expatriation pay) approximately $1.06 millions. To carry out in full the programme outlined above would cost approximately—

$1.5 millions in additional annually recurrent expenditure (including provision as above).

$0.3 millions in capital and special expenditure.

BROADCASTING.

122. The general lines on which it is hoped that Broadcasting services in Malaya will develop can be described quite simply (it must be remembered that all schemes for development of Broadcasting in the Federation depend to a greater or lesser extent on parallel developments in Singapore). First of all there is the need to provide programmes of good quality and adequate variety which can be heard easily by listeners in all parts of the country. Secondly, proper facilities must be created for the transmission of local programmes, in whatever centres they have originated. Thirdly, and perhaps most important of all, Broadcasting should be developed to the full extent as a medium of education, both to the adult population and to children in schools. This programme can only be carried through after many technical difficulties have been surmounted and not inconsiderable expense incurred. Of the necessity for such a programme there can, however, be very little doubt.

123. Fortunately, the programme can be introduced piecemeal, and the list of principal objectives to be attained which is given below also to some extent represents the stages by which the work will be executed. Certain of the items can, however, be proceeded with independently of the others, the third and fourth in particular being of this description. The objectives of development are:

A. Completion of the existing network.

B. Creation of a new programme circuit—1st stage.

C. Community listening.

D. School broadcasts.

E. Creation of a new programme circuit—2nd stage.

F. Introduction of a Third Programme.

124. Completion of the existing network (Item A) will have been achieved when the new transmitting stations at Kajang and at Penang have been erected and the necessary programme circuits provided between

Kajang and Kuala Lumpur. When this has been done, and an almost obsolete transmitter at Malacca replaced, the first stage of the post-war broadcasting plan may be said to be generally complete. Large areas of the country will, however, still remain unprovided with a proper broadcasting service.

125. The first step in the creation of a new and more extensive programme circuit (Item B)—which will also make the existing network much more efficient—is the provision of multi-channel Very High Frequency equipment between Singapore and Kuala Lumpur and between Kuala Lumpur and Penang. To use the analogy of a road system, this will be the main trunk route to which other subsidiary roads will be joined. That, however, looks forward to a later stage of development; the immediate advantages are a great improvement in the quality of reception in the area served by this V.H.F. link, and a considerable saving in the costs of programme production, since one programme (and that the best which is to be had) can be relayed to many different stations. To make full use of this link it would be desirable to set up a transmitting station at Ipoh, on the route between Kuala Lumpur and Penang, which would serve the relatively dense population in that locality.

126. It is through community listening sets (Item C) that Broadcasting in Malaya can make one of its chief contributions to adult education. It is now well recognized that if the rate of expansion of popular education were to be governed by the capacity of the country to open and staff new schools, the pace would be much too slow. Broadcasting is an effective and also economical way of spreading enlightenment to vast numbers of the population who are ready to receive it and who cannot be approached in any other way.

127. The object of the School broadcasts (Item D) is to make available to school classrooms in every part of Malaya expert knowledge, new ideas and methods, and first class performances of drama and music. The plan is to provide English broadcasts for Malay and Tamil schools (they are already provided for Chinese Schools) to provide broadcasts for pre-University classes in English and Chinese Schools, and greatly to strengthen the broadcasts to all types of school on the geography, history, natural history and civic institutions of Malaya.

128. The second stage in the development of the programme circuit (Item E) will be to extend the V.H.F. network to the East Coast by means of additional links radiating either from Kuala Lumpur or Ipoh, the exact points only being determined after exhaustive field tests have been completed. This extension of the network is not likely to be possible for some time to come, in the meanwhile it is planned to establish transmitting stations on the East Coast which will make it possible to inaugurate a second programme for this part of the country.

129. The value of a Third Programme (Item F) in a country when so many different languages are in daily use is too obvious to require comment. This service could be provided without any extra staff, but a number of additional transmitters would have to be installed.

130. The estimated annually recurrent expenditure of the Broadcasting Department in 1950 is (including provision for cost of living allowance and expatriation pay) approximately $1.22 millions. To carry out in full the programme outlined above would cost approximately—

$2.39 millions in additional annually recurrent expenditure (including provision as above).

$4.47 millions in capital and special expenditure.

CIVIL AVIATION.

131. An essential preliminary to the development of the economic resources of a country is the provision of an efficient network of communications. In Malaya, where surface transport facilities by road and rail are not highly developed, and can only be augmented at great cost, there is considerable scope for the extension of air transport. Various factors combine to render the need for this extension somewhat urgent. The airfields of Malaya which before the war had been regarded as suitable for all types of aircraft have been found to be inadequate to meet the demands of post war aviation, including airline operations, both internal and external, of a frequency never previously experienced and likely to develop still further. At the same time the rapid withdrawal of Royal Air Force personnel and equipment from civil airfields gave rise on the resumption of Civil Government to serious staffing and supply difficulties.

132. The problems arising from this situation were, in the main, successfully overcome. In the meanwhile, however, aircraft have continued to develop in size and performance, and so too must the facilities for handling them. Further expansion of Civil Aviation services will become necessary, the programme being considered under the following heads:

A. Development of international airports;

B. Development of existing national airfields;

C. Development of proposed national airfields;

D. Development of emergency landing grounds.

The developments envisaged are based on the recommendations laid down by the International Civil Aviation organization.

133. The development of international airports (Item A) is rendered necessary by the geographical position of Malaya. The three airports to be considered in this category are Penang (Bayan Lepas), Kota Bharu and Kuala Lumpur. The principal requirement in each case is a runway of 6,300 feet with a bearing strength of 75,000 lbs. (107,000 lbs. in the case of Kuala Lumpur).

134. Existing national airfields (Item B) are situated at Ipoh, Taiping, Kuantan and Alor Star. These, with the airfields mentioned in the next paragraph, would be the nucleus of the Malayan air transport system of the future. The principal requirement in each case is a runway of 5,100 feet with a bearing strength of 45,000 lbs.

135. Proposed national airfields (Item C) would be situated at Port Swettenham, Malacca, Seremban, Kuala Trengganu and Temerloh. The principal requirements in each case would be as stated in the preceding paragraph.

136. Emergency landing grounds (Item D) would be situated at Mersing, Kluang, Telang, Telok Anson, Kangar, Muar, Segamat and Cameron Highlands. The requirement in each case would be an earth runway of 4,500 feet.

137. The estimated annually recurrent expenditure (Federation share only) of the pan-Malayan Civil Aviation Department in 1950 is (including provision for cost of living allowance and expatriation pay) approximately $1.25 million. To carry out the programme outlined above would cost approximately—

$ 0.4 million additional annually recurrent expenditure (including provision as above)

$12.9 million in capital and special expenditure.

DRAINAGE AND IRRIGATION.

138. In 1930, a Rice Cultivation Committee was appointed to examine the condition of the rice growing industry in Malaya and to recommend the steps to be taken to encourage it. The Committee recommended, *inter alia*, the formation of a separate Drainage and Irrigation Department to be charged with the duty of preparing and submitting to Government schemes for improving and extending padi cultivation in the Federated Malay States and Straits Settlements. These recommendations of the Committee were accepted and the Department was established on 1st January, 1932; the principal object being the promotion of rice production. In addition the Department was given the responsibility for the conservancy of rivers and agricultural drainage.

139. The work which the Department achieved, in the decade prior to the Japanese occupation, clearly demonstrated that padi land had gone out of cultivation in the past from lack of understanding of the problems involved and that if given efficient irrigation and ancillary facilities immense wastes of jungle swamp can be converted into highly productive and populated padi land. This work created such a profound impression that invitations were received from all the then Unfederated Malay States to extend the scope of the Department's executive work to include their territories.

140. The main functions of the Department now are:

A. The improvement of irrigation and drainage facilities in existing padi areas and the development of new padi areas.

B. The construction of agricultural drainage works for crops other than padi and the creation of Drainage Board areas.

C. The conservancy of rivers.

D. The execution of the surveys and investigations necessary to prepare the schemes proposed for execution by the Department (*see* A and B above).

E. The research necessary to prepare the detailed plans for the schemes.

These functions and their relation to future problems are explained in the following paragraphs.

141. The main facts concerning padi cultivation in Malaya (Item A) are well-known but will bear repetition. To begin with it must be assumed that Malaya will never again be able to depend on rice supplied from overseas to meet her full requirement as she was able to before the war. The shortage is no temporary one which will disappear when the economic systems of Burma, Siam and Indo-China have been restored to their pre-war level. The basic fact is that the demands of South East Asia's 800 million inhabitants now exceed the capacity of the rice lands to supply them, and this population is growing at the rate of at least 10 million a year. The market is and is likely to remain a seller's market, and deficit countries like Malaya will continue to be at the mercy of events which are often outside their control; a situation the inherent danger of which has been amply demonstrated in recent years. Prudence demands that even if this danger cannot be altogether avoided, all possible measures should be taken to insure against it.

142. The most obvious form of protection is to increase domestic production of rice, and this involves the provision of irrigation facilities The possibilities in this direction are as follows:

(*a*) Taking the mean of the 1947/48 harvest, which was fair, and of the 1948/49 harvest, which was rather poor, the total crop of rice from 896,780 acres is about 325,000 tons;

(*b*) A portion of this crop would be from dry padi, of which there are some 65,000 acres, but the bulk of it is from wet padi. The areas growing wet padi are not productive to the fullest extent. Increases of yield can be obtained in one or more of three ways, first by improving irrigation and drainage, second by introducing high yielding strains, and third by bettering methods of cultivation. Some of the areas are so small that the first and third of these methods can hardly be applied, but assuming that there are approximately 600,000 acres where improvement is possible, and that there would be a consequent increase of 30 per cent. in yield, then without enlarging the area under cultivation the crop might be increased by a further 65,000 tons;

(*c*) From the information available it appears that the total area of potential wet padi land in Malaya not yet opened up is approximately 763,000 acres. Of this area, 450,000 acres have still to be proved conclusively, as surveys and investigations are not yet completed. Part of it has a deep overlay of peaty organic soil and there is a conflict of opinions not yet resolved as to how such conditions should be treated. A further complication is that even if it proved suitable, cultivation by smallholder settlement would be a slow and expensive process. Mechanical cultivation, which would be economical in manpower and provide the maximum surplus of rice for sale over the cultivator's requirements, seems to offer the best promise, but experiments in mechanical cultivation of padi lands are still in their infancy. Even if they are successful, cultivation by this method will still be expensive, as all stumps and submerged timber have to be removed before it can begin. Supposing, however, that all these difficulties could be overcome, the addition to the rice crop, on the basis of half a ton per acre, would be 381,500 tons.

143. Even on the longest view therefore, the total foreseeable yield from padi cultivation in Malaya is 771,500 tons of rice. For comparison the 1949 population of the country (say 6 million, including Singapore) consuming 3½ katties of rice per head per week, and unable to obtain anything whatsoever in excess of this, would require 654,000 tons. On the same strictly rationed basis the consumption of an increased population in 1955 (say 7 million, including Singapore) would be 768,000 tons. Thus taking all the factors into account—the strictly limited area which can be used for padi planting, the enormous expense involved in bringing it into production, the danger of crop failures and the constant upward growth of population—it will be extremely dangerous, while encouraging the extension of padi cultivation, to imagine that it will ever be sufficient to supply Malaya's total needs. The insurance policy may be a valuable one, but it does not cover all the risks.

144. The need for Drainage works (Item B) arises as follows. In the past, the opening up of the coast lands along the West Coast by smallholders for coconut growing and kampong development was completely uncontrolled, and little or no thought was given to future drainage problems. The result is that a large irregular network of drains exists, which conforms to no general pattern for comprehensive drainage. In many cases the only purpose served by the drain is to facilitate the entry of seawater onto the land, the actual reverse of what was intended. In 1939 the Agricultural Department reported that along the West Coast extensive areas of coconut small holdings were steadily going out of cultivation because of bad drainage

and inundation by seawater. Since 1939 conditions have deteriorated and, over an extensive area, coconut trees are dying and yielding no fruit at all, thus depriving many smallholders in densely populated areas of their main source of livelihood. Along the flat coastal plain, efficient drainage is a *sine qua non* of successful agriculture. What is now required is a comprehensive scheme for the rectification of the internal drainage and for the prevention of inundation by seawater, by the construction of coastal bunds which will arrest further deterioration and improve conditions generally. Such a scheme would involve half a million acres. Under the Drainage Works Enactment there is provision to recover all or part of the capital cost (approximately $15 million).

145. The conservancy of rivers (Item C) as practised in Malaya may be divided into—

(*a*) the provision and maintenance of silt retention schemes, and rectification of rivers in mining areas where uncontrolled mining in the past has made this necessary;

(*b*) the investigation and planning of river deviations, to permit the mining of existing river courses;

(*c*) the restoration of silted channels by dredging in the lower reaches;

(*d*) flood mitigation schemes;

(*e*) normal clearing of existing river courses.

146. Two important flood prevention works carried out in the past are the Ipoh Flood Mitigation Works and the Kuala Lumpur Flood Mitigation Works. Both schemes have been very successful and have saved both towns from the disastrous flooding that occurred annually in previous years. The scope of this work is immense, but much of it is beyond the limits of practical economics. It is quite impossible to forecast the funds that will be required for river conservancy work in the future, as so much depends on how effective are the controls over agricultural and mining development.

147. Surveys and investigations (Item D) are necessary before undertaking any irrigation project. Contrary to popular opinion, Malaya does not contain vast areas where only the felling of jungle is required to convert the area into productive padi land. The problems which occur in the process of creating a sound rice producing scheme from virgin jungle are many and various, and involve the closest co-operation between the Departments concerned. It is of great importance that proposed irrigation projects should be thoroughly investigated, the soil analysed, and all relevant hydraulic data collected before funds are provided for the execution of the projects. Economy in design and maintenance and successful operation will depend on the soundness and accuracy of the preliminary work done. Funds for surveys and investigations should, therefore, be provided well in advance in order that proposed projects can be thoroughly explored.

148. The problems of research (Item E) and design are inseparable and their solution should proceed concurrently.

149. The estimated annually recurrent expenditure of the Drainage and Irrigation Department in 1950 is (including provision for cost of living allowance and expatriation pay) approximately $4.0 million. To carry out the programme outlined above would cost approximately—

$ 7.2 million in additional annually recurrent expenditure (including provision as above).

$170.0 million in capital and special expenditure.

ELECTRICITY.

150. The generation and distribution of electricity in the Federation is carried out by the newly formed Central Electricity Board and various private and municipal undertakings.

The facts relating to the most important stations are given below:

Location.	Type of plant.	Pre-war capacity.	Total capacity after Rehabilitation.	Owned.
Prai	Steam	14,500 K.W.	10,000 K.W.	Penang Municipality
Chenderoh	Hydro	27,000 ,,	27,000 ,,	Perak River Hydro-Electric Power Co. Ltd.
Malim Nawar	Steam	27,000 ,,	27,000 ,,	,, ,,
Batu Gajah	,,	22,000 ,,	12,000 ,,	,, ,,
Bungsar (Selangor) ...	,,	31,500 ,,	26,500 ,,	Central Electricity Board
Ulu Langat (Selangor)...	Hydro	2,300 ,,	2,300 ,,	,, ,,

In addition, there are 50 smaller power stations throughout the country equipped with oil engine driven generating plant varying in capacity from 1,500 KW to 22 KW. Over 50 per cent. of the generating plant in use throughout the country is over 24 years old and by modern standards is inefficient and should be replaced.

151. As a result of war damage and arrested development during the last ten years, the Federation now faces a grave shortage of electrical power. It is estimated that when all available generating plant has been rehabilitated by the end of 1949, it will be capable of supplying only approximately 80 per cent. of the number of units generated in 1941. Many industries, such as tin mines and rubber factories, have had to restrict their production due to shortage of power for the past four years, while future industrial development of the country is being impeded for the same reason. Due to the high wage levels in Malaya, there is now a marked tendency towards an increasing use of machinery in all industries, and a conservative survey indicates that there is at present a shortage of 120,000 KW of generating plant (excluding standby plant).

152. The next logical steps in the development of electricity supply in the Federation is the interlinking of existing large electricity undertakings, and the development of further supplies of power, particularly hydro-electric power. The two stages envisaged are:

A. Completion of Connaught Bridge Power Station.

B. Hydro-Electric Power Station and Grid System.

153. The position about the Connaught Bridge Power Station (Item A) is that as an immediate measure to alleviate the present shortage of plant the first half of a new high efficiency base load station of an ultimate capacity of 80,000 KW is now under construction near Connaught Bridge, Klang, on the Klang River. It is now certain that the capacity of the first half of this station will be insufficient to meet the firm demands made for power in 1952 and it is therefore highly desirable that this station should be completed to its designed capacity of 80,000 KW, as early as possible. The completion of Connaught Bridge Power Station will enable industrial consumers in the States of Selangor and Negri Sembilan and the Settlement of Malacca to receive an unrestricted supply of electricity for the first time since 1941. It should also be possible to reduce electricity rates since the overall thermal efficiency of Connaught Bridge Power Station will be considerably higher than existing thermal Power Stations. Not only will it be possible to set up new industries (a number of which are already in the planning stage) as a result of this development but a beginning can also be made with rural electrification schemes.

154. As regards the Hydro-Electric and Grid schemes (Item B) the long term plan is to interconnect all the large thermal stations from Prai in the North to Bungsar Power Station and the new Connaught Bridge Power Station (at present under construction) in Selangor, by 132,000 and 66,000 volts transmission lines, and to construct a large hydro-electric scheme of 100,000 K.W. in Cameron Highlands, which would, when completed, supply approximately 670 million units per annum into the inter-connected system of grid, at a cost of approximately 0.7 cents per unit. The scheme which is estimated to cost approximately $150 million would take about eight years to complete and would be remunerative and self-supporting.

FILM UNIT.

155. The Film Unit was constituted in 1946 to provide a means of informing and thereby influencing the illiterate sections of the community which lie beyond the reach of formal education. In addition, but as a secondary activity, the Unit undertakes work for non-Government organizations. Considering these two aspects separately—

(*a*) it is obvious that a well constructed film specially designed to appeal to the audiences to which it is to be shown can do a great deal to instil the duties of citizenship in the minds of people who are unaware—because they have never been taught—that residence in a country and enjoyment of the system of law and order which it provides carries with it any concomitant responsibilities. This, however, is only the beginning of the service which a properly equipped Film Unit could provide. Very many Government Departments which are in a position to give practical help and useful knowledge are hampered, not by lack of funds, but by lack of the means of conveying information about the services which are available to the people who need and can use them. There is no better way of bridging this gap than by instructional films, which can disseminate information of what is done in central research laboratories, etc., to the remotest kampongs.

(*b*) to the semi-official institution anxious to inform the public of its functions and its programme, to the charitable organization desirous of enlisting public sympathy, to the factory seeking to enlarge the market for its products and to the workshop manager looking for the means to train his staff, the existence of a Film Unit means the possibility of obtaining at moderate cost a service of the utmost value. In countries where such a service has been available for some years it is extensively used, and there is no reason to suppose that it would be less widely used in Malaya. In fact, considering the widespread illiteracy, the spreading of information by means of the film has even greater advantages here than in many other parts of the world.

156. The Film Unit aims at being able to produce between thirty and forty films a year. On whichever behalf the work of film making is done, the Film Unit charges for its services, this being the normal accounting procedure for Departments operating on a semi-commercial basis. The chief requirements are—

A. Accommodation.

B. Equipment.

C. Facilities for advanced training of technicians.

157. Accommodation (Item A) is necessary and indeed essential, as the Unit is at present housed in rented buildings, the lease of which expires shortly.

158. Equipment (Item B) now in use was purchased from South East Asia Command in 1946, after it had been in continuous use for about three years. Many items are becoming obsolete, others are in constant use and need expensive maintenance. New equipment to bring the Unit up to date and improve its service is also urgently required.

159. Advanced training (Item C) of some of the technical staff is necessary to overcome the difficulties and disadvantages of running a technical organization far from the centre of the film industry. Probably the best means of obtaining this training is by a reciprocal arrangement, whereby the Unit would send two technicians a year to the United Kingdom and at the same time benefit from the experience of the technicians from the United Kingdom who would temporarily replace them.

160. The estimated annually recurrent expenditure of the Film Unit in 1950 is (including provision for cost of living allowances and expatriation pay) approximately $.225 million. To carry out the programme outlined above would cost approximately—

$.237 million in additional annually recurrent expenditure (including provision as above).

$.715 million in capital and special expenditure.

HOUSING.

161. In December, 1946, a Committee was appointed to consider and report on the nature and the extent of the housing problem in the country and the financial and other measures required for its solution. The final report of this Committee stated the "hard core" of the housing problem to consist "firstly, of houses which are inadequate both with regard to accommodation and conveniences and, secondly, of houses which are suitable in themselves but have become a danger to public health due to gross overcrowding. The first group consists mainly of squatter type dwellings which can only be classified as hovels. These have been erected in many of the main towns with little regard to siting or sanitation and constitute a grave threat not only to the health of the occupants, but to whole townships. The second group is composed of structurally sound dwellings which could afford satisfactory accommodation for a reasonable number of people but which have been split into numerous cubicles with consequent serious overcrowding. Both these problems, particularly the latter, existed before the Japanese occupation but they have been considerably aggravated by the expansion which has taken place in recent years in the urban population".

162. At the time when this report was written no figures of the rate of expansion of the urban population were available. In the report on the 1947 census of population, however, it was revealed that during the sixteen years between 1931 and 1947 the total population of all the large towns in the Federation of Malaya had increased from 601,746 to 918,385, i.e., by 52.6 per cent. The increase would be even greater if regard were had to the growth of populations in the areas immediately around the larger towns where there had also been a big expansion. When it is further remembered that during seven out of these sixteen years very little new building of properly constructed houses was undertaken, the dimension of the problem begins to be appreciated.

163. The financial investment required to provide urgently needed private accomodation is vast. The sum of $150 million has been quoted—and this is of course exclusive of the amount required to house Government servants. Quite clearly it would be beyond the capacity of Government to finance or administer building operations of this magnitude, and the most useful contribution it can make to the solution of this problem would appear to be by stimulating and facilitating private enterprise in this direction. The proposed method of doing this is described in paragraphs 245-248 of Part III below.

LAND SETTLEMENT.

164. Many parts of Malaya which are at present virtually uninhabited will, if schemes mentioned elsewhere are brought to fruition, be actively colonized in the future. The conversion of an area of virgin jungle into productive arable land is by no means a simple operation involving only the Forestry and the Drainage and Irrigation Departments. When their work is done roads still have to be built, social services provided and postal facilities extended so that the inhabitants of the new area may enjoy at least such minimum standards as prevail throughout the rest of the country which has been developed. In brief, the opening up of new areas is impossible without a heavy investment of capital.

165. One aspect of development additional to those already mentioned is that of land settlement, or the actual placing of colonists on the land. This nearly always involves some expenditure of public funds, though it may not involve a great deal. It would be quite impossible to calculate the total provision of funds necessary under this head, without detailed investigations of each area separately. The matter is merely mentioned, both here and in Part III, so that it may not be overlooked.

MARINE.

166. Marine development is confined to the improvement of existing facilities, which can be summarized as follows:

A. Electrification of watched lights;

B. Provision of suitable dredging plant;

C. Study of river training and conservancy problems at minor Malayan ports;

D. Installation of launch repair facilities at Glugor, Penang.

167. The machinery of six watched lighthouses in the Malacca Strait was installed between the years 1881 and 1908 and needs replacement (Item A). Until such time as Light Dues can be charged for the use of navigational aids around Malaya the improvement of existing lights is all that can be expected.

168. The dredger "Kuantan" which was designed and built over 40 years ago is a very expensive craft to maintain and is unsuited to conditions at Malayan ports except Penang and Port Swettenham. Soon economic repair will no longer be possible and this vessel will have to be replaced (Item B). A new vessel would cost less to maintain.

169. The conservancy problems at the majority of minor ports are intricate and specialized advice (Item C) is necessary before expenditure on a big scale is undertaken on dredging operations at those ports.

170. It is desired to improve the existing facilities at Glugor Marine Base, Penang, so that all Government launches could be slipped and repaired (Item D).

171. The estimated annually recurrent expenditure of the Marine Department in 1950 is (including provision for cost of living allowance and expatriation pay) approximately $1.3 millions. To carry out in full the programme outlined above would cost approximately—

$.095 millions in additional annually recurrent expenditure (including provision as above).

$1.86 millions in capital and special expenditure.

METEOROLOGY.

172. The Malayan Meteorological Service is a Department which serves both the Federation of Malaya and the Colony of Singapore. The Department could in fact be very much larger, for the weather does not confine itself to territorial divisions and a forecast may be based on evidence collected hundreds or even thousands of miles away from the place where it is given. The Department has, however, had more than a fair share of staffing difficulties with the result that even the present area cannot be covered and proposals to establish a regional service over a wider area have had to be constantly deferred.

173. This main objective of establishing a regional service over Malaya and the Borneo territories has been accepted by the Federation Government with certain reservations as to the extent to which it will be called on to contribute. It now appears that such a service will not be established before 1951 at earliest. When it is established the Department will be fully occupied with the task of covering its existing responsibilities and no new activities are contemplated.

174. The estimated annually recurrent expenditure (Federation share only) of the pan-Malayan Meteorological Department in 1950 is (including provision for cost of living allowance and expatriation pay) approximately $0.31 million. To carry out the programme outlined above would cost approximately—

$0.15 million additional annually recurrent expenditure (including provision as above).

$0.52 million in capital and special expenditure.

POSTS.

175. The responsibility of the Postal Department is to provide an efficient Postal system, which includes Money Order and Savings Bank business. Within the Department the Savings Bank functions as an independent unit, meeting its own overhead and recurrent charges, and contributing a proportionate sum in respect of Savings Bank work performed by postal officers throughout the country. The social importance of the work carried out by this Bank at the 186 Post Offices throughout the Federation from which it operates may be judged from the fact that the total savings on 31st December, 1949, stood at more than $47 million.

176. Besides these 186 Post Offices, there are 114 Postal Agencies at which restricted postal facilities are provided. The estimated recurrent expenditure of the Department in 1949 including cost of living allowance, etc., but allowing for the Singapore share of Headquarters expenditure was approximately $5.5 million, as compared with an estimated revenue of $8.5 million. Revenue is paid direct to Government, no portion of it being retained (as is done in the United Kingdom) for development purposes. An extensive programme of development is envisaged, however, to meet the needs of a growing population and an expanding volume of postal business. The main items in this programme are as follows:

A. A building programme.

B. Improvement of transport.

C. Publicity.

177. Under the building programme (Item A) fourteen new post offices are required, and forty-seven existing post offices need to be replaced. Garages are required at four centres, and quarters at two others. New general post offices are wanted at Kuala Lumpur and Penang. A certain amount of new equipment is necessary.

178. Improvement of transport (Item B) includes a launch for transhipment of mails at Penang but consists mainly in building up a fleet of vans for the transportation of mails.

179. Publicity work (Item C) could be undertaken to advantage, particularly in connection with Savings Bank activities.

180. The estimated annually recurrent expenditure of the Postal Department in 1950 is (including provision for cost of living allowance and expatriation pay) approximately $6.3 million. To carry out in full the programme outlined above would cost approximately—

$0.9 million in additional annually recurrent expenditure (including provision as above).

$5 million in capital and special expenditure.

RAILWAY.

181. The Malayan Railway Administration, although established by the Railway Ordinance as a Corporation with limited powers and although a separate Supply Ordinance is passed annually by the Federal Legislative Council to cover its expenditure, is in effect a Department of Government by virtue of Clause 145 of the Federation of Malaya Agreement which vested all Railway assets in the Chief Secretary for the purpose of the Federal Government. The Railway is one of the principal national utilities, and it accordingly has a place in this Chapter. Three major development projects are under consideration:

A. The provision of additional deep water berths at Port Swettenham.

B. Measures to deal with the silting problem at Prai, so that the wharves may be used by ocean-going vessels.

C. The construction of an East/West Railway line between Kuala Lumpur and Triang on the present East Coast line.

182. The position at Port Swettenham (Item A) is that there are at present two deep water berths. These berths were formerly used mainly for general import cargo, but are now used to an increasing extent for the export of latex and palm oil through pipelines connected with bulking installations in the port. At present about half the total port tonnage of all cargo passes over the two deep water berths. About 46 per cent. of all cargo is lightered to and from ships anchored in the roads and lighterage wharves while the balance passes over the foreshore or direct from ships at the Coastal Wharf, which can at present accommodate vessels having a draft of about 15 feet.

183. There has been congestion involving delay to ships on various occasions both before and after the war, and the need for additional deep water berths has been recognized for many years. As long ago as 1930 it was generally agreed that, of all the Malayan ports, expansion was most necessary in Port Swettenham, since saturation point had already been reached there. Two alternative schemes have been considered. The first would involve the building of a wharf with two berths and with godowns on the wharf at a site on the North Klang Straits about 3¾ miles from the

present site. The points in favour of this scheme are that there would be ample space for further extension, no navigational difficulties and no silting problem. The capital cost would, however, be somewhat heavier than that of the alternative scheme, which is to construct two additional ships' berths at the existing site. It cannot yet be definitely stated that the latter scheme is a practicable proposition or that, if practicable, it would not involve excessive expenditure on annual maintenance dredging.

184. The largest vessels at present using Prai Wharves (Item B) are about 290 feet in length, with a draft of 18½ feet and a cargo capacity of 2,000 tons. In 1947 it was agreed that the Malayan Railway and Penang Harbour Board should jointly obtain expert opinion on the relative merits of two development plans which had been proposed, one to deal with the silting problem and make the Prai Wharves useable by ocean shipping, the other to construct new ocean shipping wharves at Bagan Luar, Butterworth. Detailed investigations have now been carried out as a result of which it is considered that the silting problem at Prai can be solved, though maintenance dredging would still be required. It has been calculated that, by carrying out the necessary river-training works, and continuing this dredging, the limiting draft for vessels would be 28 feet as a general rule with a greater draft on neap tides. A limiting draft of 28 feet would be greater than that of all coasters and of four out of five of the ocean and home trade vessels which now call at Penang.

185. The proposals for an East/West Railway (Item C) arose out of a report submitted some twenty years ago. This report recommended the construction of a line which, leaving the main line six miles to the south of Kuala Lumpur, would proceed to join the East Coast line either near Mengkarak or at Triang, 56 miles north of Gemas. The proposed line would be 68 miles in length and would reduce the rail mileage to Port Swettenham from Triang and all points to the north of Triang in Pahang and Kelantan by 91 miles. This reduction in the distance to an ocean port would assist development of the Eastern States and would be of particular importance for the movement of bulky commodities, such as palm oil, timber and latex. It should be emphasized that this is a long term project which could be justified only by the growth of population in the Eastern States and by large scale agricultural, mining or other developments for which cheap transport would be essential. The proposal would, in any case, have to receive further and careful consideration.

ROAD TRANSPORT.

186. This Department is concerned with the supervision and not with the operation of road transport in the Federation of Malaya. It may, however, fairly claim to be counted among the "utilities", as the operation of a safe, stable and suitable transport system for the carriage of passengers and goods by road could not be achieved by private enterprise without a fair measure of public control. For the purposes of this plan, the proposed development of this supervisory organization may be divided into

A. Improvement of existing office accommodation and of facilities for testing and inspection of motor vehicles.

B. Introduction of additional safeguards in the interest of the road using public.

187. The first of these proposed developments (Item A) is rendered necessary by the fact that the offices, etc., of the Road Transport at the nine centres in the Federation from which it operates are for the most part unsuitable. Some are housed in rented premises, and others are in buildings

which are likely to be required for other purposes. In certain cases the offices are difficult of access or the accommodation and inspection sheds are inadequate.

188. Certain provisions (Item B) which have been embodied in the draft Motor Vehicles and Road Traffic Bill are designed to ensure the greater safety of all road users and the comfort and convenience of passengers travelling in Public Service vehicles.

189. The estimated annually recurrent cost of the Road Transport Department in 1950 is (including provision for cost of living allowance and expatriation pay) approximately $.738 million. To carry out the programme outlined above would cost approximately—

$0.022 million in additional annually recurrent expenditure (including provision as above).

$0.457 million in capital and special expenditure.

TELECOMMUNICATIONS.

190. The Posts and Telegraphs Department in 1939 had 8,271 telephone subscribers. The comparable figure for 1949 is 13,497, with a waiting list of 4,300. The demand for other Telecommunications services is correspondingly large, and it would be even greater if there had been the possibility since the war of launching out on a programme of really active development. In the early post-war stage the principal difficulty was that of obtaining equipment, in spite of the fact that large orders were placed during the occupation and after the liberation of Malaya. This difficulty is already much less than it was, and the problem is now mainly a financial one, of installing the lines, the exchanges, the cables and the buildings which are necessary to provide an efficient and economical service attractive to the public. The capital investment required for these purposes is large, for while telephone exchange equipment is capable of being extended at the end of five years, the more costly items such as buildings and underground cables are calculated to last for at least twenty years.

191. Here it may be as well to state what sort of service the Telecommunications Department should try to provide, before proceeding to discuss its long-term objectives. One basic fact is that while the Telecommunications service is a national utility, and must therefore aim at providing a service for the maximum number of people, it must at the same time produce sufficient revenue to be financially self-supporting. In areas of high telephone density the cost of providing this service is considerably less per subscriber than in rural areas having an extremely low telephone density. Apart from a few large towns the telephone density of this country is very low—only 0.4 per cent. of the population, compared with 9.3 per cent. in the United Kingdom and 24.2 per cent. in the United States of America. It is therefore inevitable that a proportion of the revenue received from town subscribers should be used to subsidise the cost of providing a service for rural subscribers.

192. The long-term objectives of the Telecommunications Department can be summarized as follows:

A. Improvement of internal telephone services.

B. Provision of efficient press and commercial telegraph services.

C. Training of Telecommunications staff.

D. Establishment of international telephone links.

E. Special services.

The provision of these services must be subject to the economic considerations of low cost to the user and sufficient return to the Department to make it self-supporting. Further particulars are given below.

193. The internal telephone service (Item A) should be such that any telephone subscriber can speak to any other subscriber in Malaya without delay. To achieve this as many manual exchanges as possible require to be converted to automatic working in order to increase efficiency and reduce operating costs. Trunk and junction lines have to be increased in number and wireless channels introduced to supplement the usual physical circuits. New exchanges need to be opened in areas not served at present and a revised and simplified method of charging for calls should be brought into operation.

194. The main requirement for an efficient telegraph service (Item B) consists of the installation of Teleprinter switchboards at all the main centres, to enable telegrams to be handed more expeditiously without re-transmission, and the extension of the number of circuits available for the passing of Phonograms.

195. Normal basic scientific education and some electrical engineering training (Item C) can be provided in schools or in the Technical College. With the increasing complexity of modern apparatus, however, and the constant improvements being effected, it is necessary for more specialized and "refresher" courses to be provided by the Department itself.

196. Proposals for instituting international telephone links (Item D) must be regarded as tentative since they are subject to the conclusion of satisfactory arrangements with the Commonwealth Telecommunication Board and the International Telecommunications Union. Of first importance is the establishment of a radio link with the United Kingdom, which will provide radio telephone circuits for the relaying of broadcast material; this service is planned to be introduced in 1950. Preliminary enquiries have been made with a view to setting up radio telephone services with the following countries—Australia, India, Hongkong, the Philippine Republic, Sarawak, North Borneo, the United States of Indonesia and Thailand. There is also the possibility of extending the services to include Burma, Ceylon and New Zealand. It is improbable that this development will be a charge on Federation funds but the projects should be mentioned as otherwise the general picture of Telecommunication Development would be incomplete.

197. The special services (Item E) to be provided include arrangements for carrying out international obligations regarding the safety of life at sea, the handling of an increasing number of ships telegrams and co-operation with the Broadcasting, Civil Aviation and Meteorological Departments and with Malayan Railway (whose telecommunications are maintained by the Telecommunications Department). These services are growing in extent.

198. The estimated annually recurrent expenditure of the Telecommunications Department (Federation share) in 1950 is (including provision for cost of living allowance and expatriation pay) approximately $9.0 million. To carry out in full the programme outlined above would cost approximately—

$ 3.0 million in additional annually recurrent expenditure (including provision as above).

$80.0 million in capital and special expenditure.

PUBLIC WORKS.

199. Consideration of the part to be undertaken by the Public Works Department has been reserved until the last since that part is clearly vital to the success of the Development Plan. The Drainage and

Irrigation Department and the Forestry Department are partially independent of Public Works Department Services, while the proposed Housing Trust, the Central Electricity Board and the Malayan Railway are entirely so. But all the other schemes mentioned in this or in the preceding Chapter can only be executed if there is sufficient capacity in the Public Works Department, after carrying out normal maintenance work, to spare for new undertakings. From this point of view, the present staffing position mentioned in paragraph 59 above is obviously a matter for concern.

200. The principal future developments of the Public Works Department are likely to be:

A. Roads.

B. Bridges.

C. Water Supplies.

D. Workshops.

E. Government Housing.

F. General.

201. The road programme (Item A) has two aspects. The existing road system requires standardisation as to width, capacity and alignment of the main through routes. Besides this, many new roads are required throughout the country. A preliminary list has been compiled on the basis of information supplied by States and Settlements and still unco-ordinated; this gives a total of 2,000 miles of existing roads to be widened or new roads to be built. A critical survey of the list would probably result in a considerable reduction of this figure which does, however, show the very great demand for further development if there is the money and the means to carry it out.

202. Concurrently with the plan for the development of roads there must be a plan for the building of bridges to modern standards (Item B). Although hundreds of bridges were destroyed during the war in Malaya it is not unreasonable to suggest that the period of "rehabilitation" is now over and that the rebuilding of these bridges must be regarded as part of the development plan. In fact much more than mere replacement is required; the bridges must be rebuilt to a modern load carrying capacity.

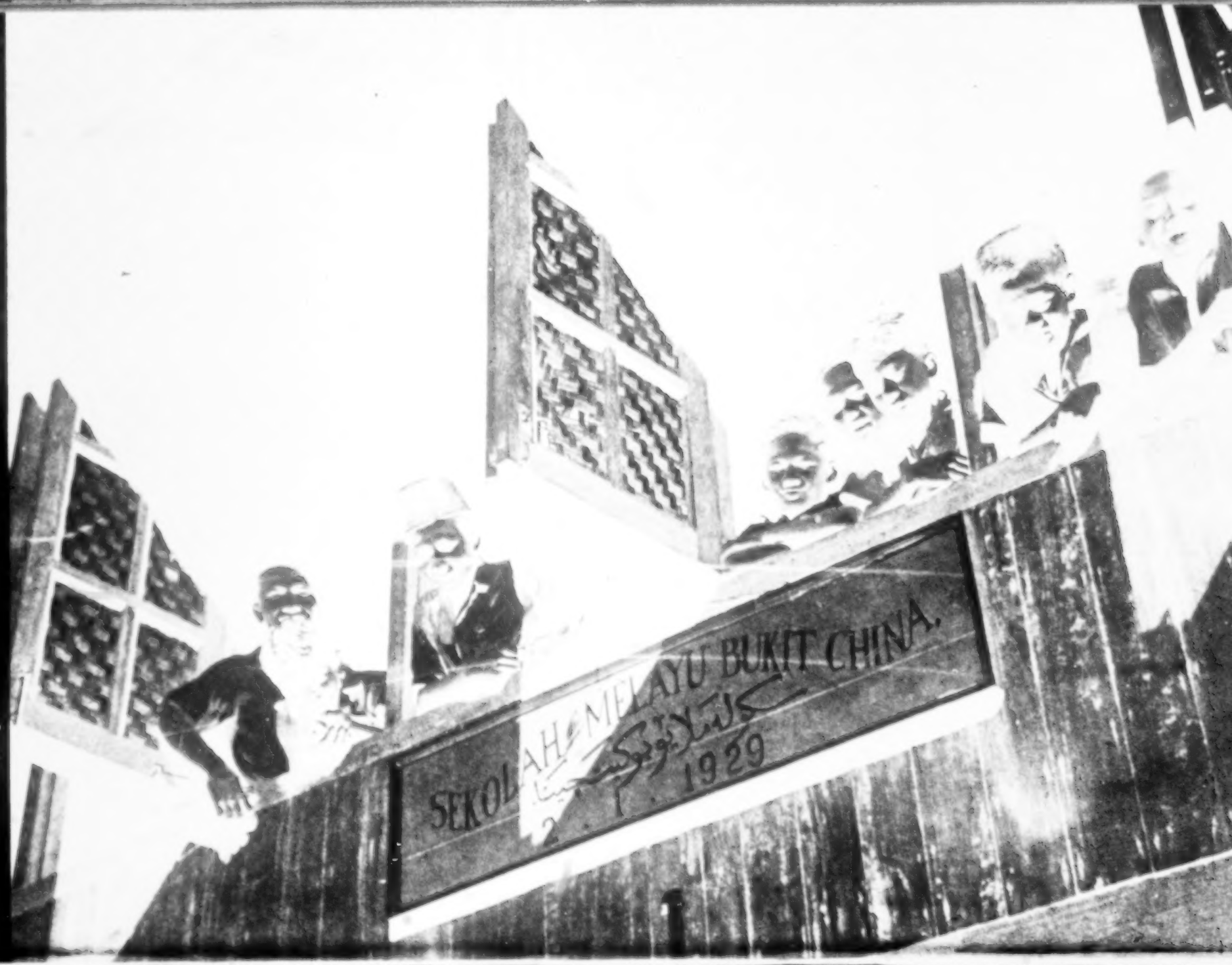
203. A beginning has been made with the augmentation of water supplies (Item C) or the provision of new supplies in some towns, but there are still many deficiencies to be made up. In some areas the supply is inadequate owing to increased population and in others no pipe supplies exist at all. A total of sixty schemes have been prepared for execution when sufficient funds become available.

204. A great deal has been done since the liberation in the provision of modern workshops (Item D) for the servicing and maintenance of all types of mechanical equipment and vehicles and with the completion of the new Federal Public Works Department Factory in Kuala Lumpur in 1951, most of this provision will have been accomplished. Certain State Workshops, however, still require to be modernized.

205. The Public Works Department is responsible for executing all Government housing schemes (Item E). Many of the long term objectives mentioned in this Part involve additional staff and consequently additional housing. Without a more precise formulation of the long term programme it is not possible to estimate what the need for additional housing is likely to be, but it is clear that it will be very large.

[*Public Relations.*

Inside a Perak rice-mill.



A rural Malay vernacular school.

[Public Relations.

206. Finally, a general increase in the size of the Public Works Department (Item F) is necessary as the pace of development increases. Stated in the simplest possible terms, for every million dollars of new development work undertaken annually by the Department over and above its existing capacity, provision must be made for an increase in the annual cost of running it to the extent of some one hundred thousand dollars. So far as the execution of the long term programme is concerned it is not possible to say what increase of Public Works Department capacity would be required. If the progress of development were at all rapid, the increase of capacity would have to be proportionately high. In this connection it is pertinent to mention that the rapidity of progress is also regulated by the capacity of the contractors on whom the Department relies to execute a large part of the work with which it is entrusted.

207. The estimated annually recurrent expenditure of the Public Works Department in 1950 is (including provision for cost of living allowance and expatriation pay) approximately $38 million. To carry out the programme outlined above, with the exceptions of Items E and F, would cost approximately—

$ 7.7 million in additional annually recurrent expenditure (including provision as above).

$ 98 million in capital and special expenditure.

Part III.—DRAFT PROGRAMME 1950-1955.

Note.—This Part is divided into the following sections:

Resources.			Utilities.			Utilities.		
Agriculture ...	paras.	208-210	Broadcasting	paras.	232-234	Marine ...	paras.	250-252
Fisheries ...	,,	211-213	Civil Aviation	,,	235-237	Meteorology	,,	253-255
Forestry ...	,,	214-216	Drainage and Irrigation ...	,,	238-240	Posts ...	,,	256-258
Geological Survey ...	,,	217-219	Electricity ...	,,	241	Railway ...	,,	259
Mines ...	,,	220-222	Film Unit ...	,,	242-244	Road Transport ...	,,	260-262
Veterinary ...	,,	223-225	Housing ...	,,	245-248	Telecommunications ...	,,	263-265
Co-operative Societies ...	,,	226-228	Land Settlement ...	,,	249	Public Works	,,	266-268
Information Services ...	,,	229-231						

AGRICULTURE.

208. Although, for the sake of clarity, the long term objectives of the Department of Agriculture mentioned in paragraphs 64-70 above were listed under four separate headings, it would be unrealistic to observe these distinctions in dealing with individual schemes, which may have been designed to promote development in several different directions simultaneously. It is more practical to list the schemes in the order of their importance.

209. Estimated figures of ultimate cost and special expenditure, etc. (C) and of the maximum annually recurrent maintenance charges resulting therefrom (A.R.) are given in brackets after each item. Further details are given in Appendix E.

(i) Fundamental Research and Crop and Animal Husbandry Investigations. These researches and investigations include work under the following heads:

(*a*) researches into soil types, plant breeding, cultivation and manuring, mixed farming, processing of crops, control of diseases and pests;

(*b*) evaluation of diversified forms of agriculture in various environments;

(*c*) safe importation of new types of crop, the evolving of new varieties of crop, and fundamental or applied investigational work directed to their improvement and best management in the field. (C. $1,602,000; A.R. $875,000).

(ii) Agricultural Economic Survey. Research work directed to the betterment of smallholders agriculture must for its proper formulation be based on a detailed knowledge of the nature and economics of existing smallholders agriculture, about which almost nothing is known at present. (C. $75,000; A.R. $ Nil). It is possible that this survey may form part of a more general investigation into the economic conditions of the agricultural worker, but plans for this are still incomplete.

(iii) Provision of Planting Material of Rubber. The object of this scheme is to provide smallholders with improved rubber planting material at low cost. This scheme is to be carried out in collaboration with the Rubber Research Institute. This is regarded as an entirely capital project as it will not involve any permanent expansion of the Departments activities. (C. $837,000; A.R. $ Nil).

(iv) Mechanical Cultivation of Rice. This is a scheme for investigations into intensification and development of padi growing by the use of agricultural machinery. It is in continuation of an existing C.D. & W. scheme. (C. $98,000; A.R. $ Nil).

(v) Quarantine station. This is a scheme for the establishment and maintenance for five years in the first place of an isolation garden in a safe area for quarantine of imported planting material particularly cocoa seeds. It is in continuation of an existing C.D. & W. scheme. (C. $75,000; A.R. $ Nil).

(vi) Higher Agricultural Education. The plan is to expand the existing college so that, broadly speaking, it will accommodate one and a half times the present number of students. In practice there would be considerable flexibility in the number of students taking each course. At the same time it will be necessary to increase the teaching staff. (C. $90,000; A.R. $42,000).

(vii) Development of the Pineapple Industry. This is a scheme for administrative assistance in the revival of the pre-war pineapple industry based on pre-war rehabilitated factories but a new (peat land) field environment. It is in continuation of an existing C.D. & W. scheme. (C. $86,000; A.R. $ Nil).

210. The capital cost of this programme and the addition to the annually recurrent expenditure which its adoption would involve are summarized below:

Capital and special expenditure $2,863,000.

Additional annually recurrent expenditure $917,000 (including cost of living allowance and expatriation pay).

FISHERIES.

211. The Fisheries Department is organized on a pan-Malayan basis and, of the four major development proposals resulting from the policy outlined in paragraphs 71-76 above, only one is exclusively for the benefit of the Federation of Malaya. Two of the remainder are South East Asia regional schemes, and the other is a Commonwealth scheme.

212. Estimated figures of ultimate cost and special expenditure (C) and of the maximum annually recurrent maintenance charges resulting therefrom (A.R.) are given in brackets after each item. Further details are given in Appendix F.

A.—Research.

(i) Fresh Water Fisheries Research Institute, to be established near Penang. This is to be a Commonwealth institution, the purpose of which is explained in its title. Malaya was chosen as the suitable site in view of the long established traditions of fish farming. (C. $2,168,000; A.R. $160,000). The capital cost will be met entirely from the British treasury, annually recurrent charges after the first five years being divided among the different territories concerned.

(ii) Marine Fisheries Research Laboratory (including craft) to be established near Singapore. This is to be an institution serving the South East Asia region, and its purpose is explained in its title. (C. $1,552,600; A.R. $258,600). It is probable that the capital cost will be met from a grant under the Colonial Development and Welfare Act; the annually recurrent cost will be borne in a proportion to be agreed among the five territories concerned.

B.—Application of Research.

(iii) Kelantan Fish Marketing Scheme. This is a part industrial part welfare scheme designed to reorganize the production, marketing and distribution of fish in the Kelantan region and to raise the present very low standard of living of the fishermen. Details of the scheme have not yet been fully worked out but it is intended that it should be self-supporting. (C. $1,100,000; A.R. $ Nil).

(iv) Marine Fisheries School (including craft), to be established near Singapore. Here instruction and training would be given to young fishermen in mechanized fishing, processing, packing, etc. Incorporated with the school would be a technological Research laboratory where investigations into packing, refrigeration, canning, net preservation, hull construction and allied matters can be carried out and experimentally applied. (C. $723,000; A.R. $53,000). Annually recurrent costs would be divided between territories supporting the school.

213. The capital cost of this programme and the addition to the annually recurrent expenditure which its adoption would involve are summarized below:

Capital and special expenditure $5,543,600.

Additional annually recurrent expenditure $471,600 (including cost of living allowance and expatriation pay).

A part only of these sums would be borne by the Federation Government.

FORESTRY.

214. It will not be possible to attain all the objectives mentioned in paragraphs 77-87 within the six year period, particularly in so far as research and road construction are concerned, but the brief notes which follow set down what it is hoped may be achieved.

215. Estimated figures of capital cost and special expenditure for the six year period (C) and of all annually recurrent maintenance charges arising therefrom (A.R.) are given in brackets after each item. Further details are given in Appendix G.

EXPANSION OF TRAINING FACILITIES.

(i) No facilities exist for the training of the senior (Assistant Conservator of Forests) grade of Officer locally. These may come when the University of Malaya gets into its stride, but for the present selected candidates must be sent to the United Kingdom for training. In pursuance of the policy of training locally born men for the higher grades of the service it is desired to send three candidates for training during the next six years. It is also intended to send Extra Assistant Conservators and Technical Assistants for training courses overseas from time to time. (C. $ Nil; A.R. $12,000).

(ii) Training of other grades is carried out at the Forest Research Institute, Kepong. The existing vernacular Forest School needs extension to accommodate fifty students, and an office and store are required. Additional quarters are also needed for the Assistant Instructor and accommodation for Probationer Sub-Assistant Conservators taking the higher forestry course in English. (C. $137,000; A.R. $3,000).

B.—SILVICULTURAL TREATMENT.

(iii) The objects of silvicultural treatment have been briefly explained in paragraph 81. Present provision for this work is on an *ad hoc* basis giving no guarantee that funds will be recurrently available for carrying out the working plan. In lean years funds for improvement, i.e., silvicultural work, are frequently curtailed. Forestry is a long term project and must work to a plan covering, not just six years ahead, but a whole rotation of growth, which is 120 years in the case of hardwoods. If funds are not provided in any one year the plan is thrown out of gear. It is fatally easy to allow the mature trees to be felled and to take the revenue without bothering about the vital regeneration that silvicultural operations will secure. That is just vicious exploitation and leads not only to a loss of good forest but quite probably to degraded soil. It is essential that a fixed proportion of the revenue earned be put back into the forests and in the present stage of development 10 per cent. is considered a reasonable figure for the country as a whole. The money allocated for forest improvement work in 1950 is $374,000. The 1948 revenue was $4,309,684 but a normal revenue can be taken as $5 million. The amount that should be made available for silviculture is therefore $500,000 and the whole amount should be allocated between States and Settlements on the advice of the Director of Forestry, as the need for intensive silviculture is less urgent in some parts of the Federation than in others. The difference between what has been provided and what is required has been adjusted for the period of this plan. (C. $ Nil; A.R. $126,000).

C.—REAFFORESTATION.

(iv) The necessity for planting exotics has been mentioned in paragraph 82. Further work on Teak is desirable in the north Malayan climatic region. Imports of Teak are valued at some $3 million annually and the advantages of growing this timber in Malaya are obvious. Research and experiment at Kepong and elsewhere with other exotics, particularly the true Mahogany (swietenia macrophylla), the Eucalypts and certain conifers has already been carried out and the way is now open for the establishment of some of these species in regular plantations. (C. $300,000; A.R. $20,000).

D.—FOREST ROADS.

(v) As explained in paragraph 83 roads (or other suitable extraction facilities) are essential to open up new forest areas. The existing $3½ million scheme for forest road construction will probably run to the end

of the year 1954 but a further $600,000 will be required for the year 1955. It is estimated that because of the increased premia derived from blocks served by departmentally constructed roads, the capital cost of any given project is recouped and paid into the general revenue within ten years. Maintenance will be the responsibility of the States concerned but will be more than offset by the additional royalty received. (C. $3,600,000; A.R. $150,000).

E.—Quarters.

(vi) From the very nature of their duties a large proportion of the subordinate field staff must live in or near the forest. Departmental housing in this respect leaves much to be desired as it has been found impossible, within the funds allocated, to make much progress with new buildings, or even with the rehabilitation of old ones, since the liberation. It is essential for the well-being, health and contentment of the subordinate staff that they should be housed as well as conditions allow. (C. $540,000; A.R. $16,000).

F.—Research.

(vii) The building of a Timber Research Laboratory near the Forest Research Institute, the employment of additional staff and the erection of quarters have all been provided for from funds allocated under the Colonial Development and Welfare Act. Under this scheme all capital and some annually recurrent expenditure are paid for out of these funds, but half the cost of the additional staff for a five year period and the whole cost thereafter is chargeable to the Federation account. (C. $651,000; A.R. $50,000).

(viii) The restoration of lands degraded by the removal of the forest covers, as for example where indiscriminate felling took place during the Japanese occupation, or where unsuitable crops have been planted without measures being taken to protect the soil, or where land has been left barren after exposure and churning of the soil in mining operations, is a matter requiring urgent attention. But before reclamation of such lands can be undertaken on a large scale it is very necessary to determine, by research and experiment, the best and cheapest method to employ. How long it will take to obtain this information is uncertain and the immediate plan is therefore to carry out the necessary investigations on a modest scale by means of a qualified specialist staff. (C. $50,000; A.R. $50,000).

(ix) It is proposed to erect an experimental (laboratory) wood-pulping plant as an extention to the Timber Research Laboratory already mentioned. There is a world shortage of news-print and at present all forms of paper have to be imported into Malaya. (C. $50,000; A.R. $20,000).

G.—Developments of a Commercial Nature.

(x) Plans also exist for the erection of a pilot plant on a semi-commercial basis for the manufacture of fibreboard (i.e., soft-board and hardboard) which would find a use for many species not marketable as timber. Such plants have been successfully operated in Australia, New Zealand, Great Britain and United States using hardwoods, which are available in vast quantity in Malaya. Fibreboard manufacture has the advantage of making use of almost all parts of the tree including its branches. There is a ready market and growing world demand for fibreboard for use in interior building construction. In the initial stages this project would not be self-supporting although it would produce some revenue. (C. $400,000; A.R. $75,000).

(xi) Another useful scheme is that for an experimental sawmill to demonstrate the value and use of modern equipment including log carriage hand saws, four cutters, edgers, etc. Such a project should at least pay for itself and might well show a profit over working costs. (C. $456,000; A.R. $180,000).

(xii) Considerable advantages would also accrue from the erection and maintenance of Government timber depôts for the storage and seasoning of timber to be used in Government contracts, etc. Fully seasoned timber is unprocurable on the local market and at present the timber used in Government buildings is unseasoned, or, at best, only partly seasoned. The use of such timber, while it may show a slight saving in initial cost, eventually costs Government hundreds of thousands of dollars in constant repairs and maintenance. Much of that money could be saved by the use, initially, of selected and fully seasoned timber. Depôts would be necessary in the larger towns but in the first instance might be confined to Penang, Ipoh, Kuala Lumpur and Johore Bahru. (C. $400,000; A.R. $68,000).

216. The capital cost of this programme and the addition to the annually recurrent expenditure which its adoption would involve are summarized below:

Capital and special expenditure $6,584,000.

Additional annually recurrent expenditure $720,000 (including cost of living allowance and expatriation pay).

GEOLOGICAL SURVEY.

217. The reorganization of the Geological Survey Department has been under consideration for many years. Since the war however, owing to actual or impending shortage of minerals, and to the need for increasing the revenues of the country, the desirability of expanding the organization and thus hastening the process of acquiring information about its mineral resources has become very apparent. Under the Colonial Welfare and Development Act funds have been ear-marked for the development of geological work, and application has been made for an allocation of these funds sufficient to inaugurate the long term projects described in paragraphs 88-95 above, and to provide for the additional annually recurrent expenditure involved over the first five years.

218. Estimated figures of ultimate cost and special expenditure, etc. (C) and of the annually recurrent maintenance charges resulting therefrom (A.R.) are given in brackets after each Item. Further details are given in Appendix H.

(i) Expansion of the Survey. Owing to the great current demand for geologists the scheme has been based on the probable recruitment rate of University trained staff. Allowance is made under this heading for transport and travelling, and for the publication of maps and memoirs. (C. $108,000; A.R. $400,000).

(ii) Buildings and Equipment. The present headquarters at Batu Gajah are very unsatisfactory, both as regards building accommodation and location. In order to maintain the closest co-operation with other departments and to ensure that the best use is made by the general public of the facilities, including the mineral museum, provided by the Geological Survey Department, the removal of headquarters to Kuala Lumpur is considered to be essential. Application has been made for the cost of new buildings together with additional fittings and equipment and the provision of houses

for headquarters staff and, as necessary, for the additional outstation staff to be borne by funds provided under the Colonial Development and Welfare Act. (C. $1,492,000; A.R. $10,000).

(iii) Prospecting. In order to ascertain the existence of economic minerals in certain reserves which for special reasons are not open to prospecting by private enterprise, and wherever needed in areas under geological survey, it is essential that Government should be in a position to carry out some prospecting itself; the siting of bores and examination of samples can in many areas best be undertaken by the Geological Survey Department. Such prospecting will be done in close collaboration with the Mines Department. (C. $10,000; A.R. $70,000).

219. The capital cost of this programme and the addition to the annually recurrent expenditure which its adoption would involve are summarized below:

Capital and special expenditure $1,610,000.

Additional annually recurrent expenditure $480,000 (including cost of living allowance and expatriation pay).

MINES.

220. As explained in paragraphs 96-102 above, the implementing of the development programme envisaged for the Mines Department is contingent on a measure of internal reorganization within the Department. No great progress can be achieved without such reorganization. There are, however, certain initial steps which can be taken even with the organization as it is at present. These are mentioned below, with the reminder that in more favourable circumstances the useful activities of the Department could be profitably expanded to a much greater degree than is here shown.

221. Estimated figures of ultimate cost and special expenditure (C) and of the maximum annually recurrent maintenance charges resulting therefrom (A.R.) are given in brackets after each Item. Further details are given in Appendix I.

A.—The Estimation and Valuation of Ore-Reserves.

(i) It is proposed to carry out prospecting of known mineralised areas, such as certain reserves which cannot be prospected by mining enterprises, in order to determine both the amount and location of ore contained therein which would be recoverable under varying economic conditions and also the possibility of these mining areas being integrated with other development projects or released for other schemes. In addition the Mines Department must be in a position to undertake the valuation of mining land required urgently for other purposes, or in dispute, and the detailed examination of ore-deposits by boring to ensure the adoption of the most efficient method of mining and tailings disposal in accordance with the principle of conservation of minerals. (C. $147,000; A.R. $210,000).

B.—Investigations Concerning Mine-Operation, Ore-Excavation, Recovery and Treatment.

(ii) An analytical study of local mine-operation, ore-concentration and tailings disposal would be initiated with a view to the future development of methods calculated to decrease costs and reduce losses of ore in tailings. Improved safety methods and devices would be tested and there would also be carried out investigations into methods of reconditioning worked-out mining land in conjunction with current operations. (C. $198,000; A.R. $55,000).

C.—Education in Mining Methods.

(iii) Training courses for the staff of the Department would be instituted, so that when the contemplated future re-organisation of the Department takes place, there will be the nucleus of a school providing facilities for the training of persons employed in the mining industry, with consequent improvement in the standard of supervision of local mines. (C. $6,000; A.R. $4,000).

D.—The Collection and Dissemination of Technical Information on Modern Mining Methods and Processes.

(iv) The proposal is to institute the following services:—The indexing and recording of statistical data collected by the Mines Department, the recording of mining experiences and practices in all mining fields which are likely to be adaptable to Malayan mining conditions, the promotion of more efficient mining methods by direct contact with the research departments of mining plant and equipment manufacturers, and the maintenance of a technical reference library. (C. $27,000; A.R. $6,000).

222. The capital cost of this programme and the addition to the annually recurrent expenditure which its adoption would involve are summarised below:

Capital and special expenditure $378,000.

Additional annually recurrent expenditure $275,000 (including cost of living and expatriation pay).

VETERINARY.

223. The principal long term objectives of the Veterinary Department mentioned in paragraphs 104-111 above, namely the objective of making Malaya less dependent on foreign meat supplies, and incidentally improving the fertility of the soil, are also fully in accord with short term policy. Since however the livestock industry in Malaya consists of a vast number of small units and the owners of animals are for the most part extremely conservative in outlook, no sudden transformation is to be expected. On the contrary it is most necessary to make haste slowly and to ensure that any new developments are carefully worked out before they are introduced.

224. The following are brief particulars of the individual items. Estimated figures of ultimate cost and special expenditure for equipment, etc. (C) and of the maximum annually recurrent maintenance charges resulting therefrom (A.R.) are given in brackets after each item. Further details are given in Appendix J.

A.—Improvement of Feeding Stuffs, etc.

(i) One of the greatest handicaps to livestock rearing as practised at present, particularly of buffaloes and oxen, is the lack of adequate grazing grounds. Many areas have in the past been gazetted as grazing grounds, but often without regard to their suitability. New grazing reserves are particularly necessary in the chief stock rearing States of Pahang, Kedah, Kelantan and Trengganu. It is estimated that some 70,000 acres are required but it is quite impossible to say, without a survey, whether the land is available. Consequently a token sum only can be entered. (C. $1,000; A.R. $ Nil).

B.—Improvement of Stock.

(ii) So far the use of stud bulls for dairy herd improvement has been tried only on a small scale owing to the difficulties of securing good stud animals. To extend this work stud bulls will have to be imported from India and stationed in dairy centres throughout the country. (C. $100,000; A.R. $42,000).

Felling timber. [*Public Relations.*

Monitor at work in a tin-mine.
[Public Relations.

(iii) For the improvement of agricultural oxen and buffaloes a "premium bull" scheme is required, this in essence being the payment of a small annual premium to the owners of approved superior type bulls used for service in their district. (C. $ Nil; A.R. $10,000).

C.—Control of Disease, etc.

(iv) Facilities for the treatment of animals exist in most of the larger towns of the Federation with the exception of Kuala Lumpur. An animal infirmary, which would be revenue producing to the extent of perhaps $15,000 per annum, is urgently required in that town. (C. $70,000; A.R. $10,000).

D.—Research.

(v) A temporary research laboratory exists but to cope adequately with animal health and husbandry problems and the production of biologics a well equipped laboratory is essential. The cost of this includes provision for a school which will be housed in the same building. (C. $1,401,000; A.R. $217,000).

(vi) A farm will be required to maintain livestock for the laboratory and also in conjunction with the school. (C. $443,000; A.R. $77,000).

225. The capital cost of this programme and the addition to the annually recurrent expenditure which its adoption would involve are summarized below:

Capital and special expenditure $2,015,000.

Additional annually recurrent expenditure $356,000 (including cost of living allowances and expatriation pay).

CO-OPERATIVE SOCIETIES.

226. The intimate connection between Co-operative Societies and the development of the national resources has been brought out in paragraphs 112-114 above. The programme for the next six years can be briefly stated as follows:

to encourage saving and teach the use of wise borrowing by the formation of primary thrift and credit societies throughout the rural and urban areas;

to build up from the primary societies federations and banking unions which will provide short term and medium term credit to those who are creditworthy;

to encourage marketing and processing societies amongst producers and so, by cutting out the middleman, enable them to get full profit from their labour;

to cheapen the cost of living and eliminate dependence on the local shop-keeper by the promotion of consumers co-operation both in the town and country and by encouraging bulk co-operative purchases of articles necessary for trade or production;

to study the economic condition and problems of fishermen, cultivators and all other types of rural workers with a view to ascertaining how best they can be helped by co-operative methods. This would be done in conjunction with other surveys of a similar kind—*see* para. 209 (ii) above;

to give advice and assistance to town dwellers in so far as their problems can be solved by co-operation;

to arrange courses of instruction in the principles of co-operation for certain officers of Government and others.

227. In order to put this programme into operation it will be necessary to build up the staff of the Co-operative Department to a number that can adequately cover the whole of Malaya; this will involve the opening and staffing of new offices. Certain expenditure will also have to be incurred on education and propaganda. Details are given in Appendix K.

228. The capital cost of this programme and the addition to the annually recurrent expenditure which its adoption would involve are summarized below:

Capital and special expenditure $5,000.

Additional annually recurrent expenditure $75,000 (including cost of living allowance and expatriation pay).

INFORMATION SERVICES.

229. The general need for an extension of information services to keep pace with development in other fields has already been explained in paragraphs 115-121 above. In view of the considerable expansion of education services which is being planned during the six-year period it is necessary that adequate provision should also be made during the same period for development of information services as well.

230. Estimated figures of ultimate cost and special expenditure, etc., (C) and of the annually recurrent maintenance charges resulting therefrom (A.R.) are given in brackets after each item. Further details are given in Appendix L.

A.—Press Services.

(i) Provision is required for expansion of the Government translation staff employed in this work so that Press statements may be rapidly issued in all the languages in current use in Malaya. (C. $ Nil; A.R. $39,000).

B.—Publications.

(ii) In order to provide information in the form of reading material of an instructional, educational and informative nature for Malay, Chinese and Tamil readers it is proposed to set up a Publications bureau under the direction of a representative committee of Malayans. (C. $400,000; A.R. $ Nil). After a preliminary stage it is to be hoped that this bureau would become self-supporting, as similar institutions have done elsewhere.

C.—Aural Media.

(iii) A number of light units are required for use on secondary roads and on rivers. Twenty such units complete with staff and with sound and film equipment should be sufficient during the first six years. (C. $220,000; A.R. $58,000).

(iv) Under this heading may also be considered the increase in the numbers of Information Officers which will be required in the States and Settlements to implement the general programme for an extension of information services. Eight officers in Division II are required. (C. $ Nil; A.R. $23,000).

231. The capital cost of this programme and the addition to the annually recurrent expenditure which its adoption would involve are summarized below:

Capital and special expenditure $620,000.

Additional annually recurrent expenditure $120,000 (including cost of living allowances and expatriation pay).

BROADCASTING.

232. The developments which are envisaged may, as was stated in paragraph 123 above, be introduced piecemeal but they certainly cannot be undertaken indiscriminately. On the contrary very careful planning is necessary if the best use is to be made of engineering and programme staff, so that they can be reduced in number at one centre just at the same time as they are required in another centre which is being expanded.

233. Estimated figures of ultimate cost and special expenditure, etc., (C) and of the annually recurrent maintenance charges resulting therefrom (A.R.) are given in brackets after each item. Further details are given in Appendix M.

A.—Completion of the Existing Network.

(i) New transmitting station at Penang. (C. $30,000; A.R. $ Nil).

(ii) New transmitting station at Kajang. (C. $150,000; A.R. $ Nil).

(iii) New transmitting building at Malacca, together with two 1 Kilowatt transmitters and ancillary equipment. The second of these transmitters is to allow for dual programme working. (C. $129,000; A.R. $8,000).

B.—Creation of New Programme Circuit, 1st Stage.

(iv) Provision of V.H.F. equipment, Singapore/Kuala Lumpur and Kuala Lumpur/Penang with provision for supplementary links. The cost of this equipment appears in the Telecommunications programme paragraph 264 below.

C.—Community Listening.

(v) The proposal is to provide 720 sets (60 mains 660 battery) at various centres throughout the Federation, to which special programmes of a general educational nature will be transmitted. The sets will be placed in the charge of the community leader, and special arrangements will be made for their maintenance which will not, however, necessitate any increase of Departmental staff. (C. $358,000; A.R. $30,000).

D.—Broadcasts to Schools.

(vi) Almost all English Schools in the Federation are already equipped with receivers, and nearly three hundred of the larger Chinese Schools have them also. Only a hundred Malay Schools are so provided. It is proposed that in each of the five years 1951 to 1955 two hundred receivers should be purchased to supply selected Tamil, Malay and Chinese Schools with sets. The schools themselves are to maintain the sets. (C. $400,000; A.R. Nil).

234. The capital cost of this programme and the addition to the annually recurrent expenditure which its adoption would involve are summarized below:

Capital and special expenditure $1,067,000.

Additional annually recurrent expenditure $37,000 (including cost of living allowances and expatriation pay).

CIVIL AVIATION.

235. An account of the total programme of work to be done to provide the Federation of Malaya with the essentials of an air transport system has been given in paragraphs 131-137. Selection of the items which appear below has been influenced by the fact that unless airport development keeps pace with the demands of modern aircraft, international airlines will not be attracted to the country and much valuable trade will thereby be lost. An even more potent consideration is the necessity of improving

facilities so as to encourage the growth of internal air communications between different parts of the country or with the territories immediately adjoining. The programme detailed below does not include any provision for a contribution which may be made by the Federation Government towards the construction of a joint airport to handle traffic on world air routes.

236. Estimated figures of ultimate cost and special expenditure, etc. (C) and of the annually recurrent maintenance charges resulting therefrom (A.R.) are given in brackets after each item. Further details are given in Appendix N.

A.—International Airports.

(i) *Penang (Bayan Lepas).*—The most urgent requirements are to extend the aircraft parking area; to instal certain additional radio facilities, to provide three additional quarters for staff; and to instal a Standby Generator and complete Runway Obstruction Lighting system. (C. $449,000; A.R. $10,000).

(ii) *Kota Bahru.*—The urgent requirements are to construct an aircraft parking area; to erect a temporary Terminal Building, Store, Garages and four quarters for additional staff; to instal additional radio services as in (i) above; and to provide an electricity and water supply, including standby generator. (C. $296,000; A.R. $8,000).

(iii) *Kuala Lumpur.*—The urgent requirements are to build a new aircraft parking area; to erect a new Terminal Building to international standards; to construct a hangar 200′ × 150′, Garages, Store, Fire/Crash Station, and quarters for ten staff; to provide additional radio facilities including HF and VHF/RT and DF, Locator and Navigation Beacons, and to provide Runway and Obstruction lighting and standby generator, waterborne sewerage system, roads and road lighting. (C. $1,383,000; A.R. $35,000).

B.—Existing Airfields.

The requirements vary as between different airfields. In general they are to provide for the completion of all Runways, Taxi-tracks, Aircraft Parking Areas, etc., to international standards, i.e., runway length of 5,100 feet by 150 feet wide and bearing capacity 45,000 lbs; to provide at each airfield an adequate Terminal Building, to include accommodation for passengers and operating companies, airfield control tower and administrative offices; to erect sufficient quarters for all operating and administrative staff; and to provide electricity and water supplies and to extend radio telecommunication and navigational aids to civil aviation. Only the most urgent part of this programme can be completed in the period under review. Estimated costs are:

(iv) at Ipoh (C. $323,000; A.R. $8,000).

(v) at Taiping (C. $245,000; A.R. $6,000).

(vi) at Alor Star (C. $172,000; A.R. $4,000).

(vii) at Kuantan (C. $233,000; A.R. $6,000).

C.—Proposed Airfields.

(viii) It is proposed ultimately to develop airfields to the same standards as those included in (B) above, at Port Swettenham, Seremban, Malacca, Kuala Trengganu and Temerloh. During the period of this plan, however, it is unlikely that much can be done to implement this programme except at Malacca, where it is proposed to build a runway 4,500 feet by 150 feet

together with aircraft parking area and connecting taxi tracks, to construct a semi-permanent terminal building, store, garages and staff quarters; to provide radio facilities; to instal an electricity and water supply and to provide an access road, etc. (C. $628,000; A.R. $16,000).

D.—Landing Grounds.

(ix) New landing grounds, consisting of a runway only, 4,500 feet by 150 feet, are proposed for certain localities where they will serve as emergency aerodromes, but will possess potentialities for the development of future air traffic in their respective areas. In addition to the existing Landing Grounds at Kluang, Sitiawan and Gong Kedah (Kelantan), airstrips could be built at Mersing, Telang, Telok Anson, Kangar, Muar, Segamat and Cameron Highlands. As it is doubtful whether much headway can be made with these schemes during the six-year period, only token provision is made. (C. $1,000; A.R. $ Nil).

237. The capital cost of this programme and the addition to the annually recurrent expenditure which its adoption would involve are summarized below:

Capital and special expenditure $3,730,000.

Additional annually recurrent expenditure $93,000 (including cost of living allowance and expatriation pay).

DRAINAGE AND IRRIGATION.

238. The general aim of the Department is by execution, maintenance and operation of irrigation schemes, land drainage schemes and schemes for river clearing, flood mitigation and soil conservation, to ameliorate conditions for the rural and agricultural peasantry and to encourage their material progress. The schemes listed below are essentially a part of the long term programme set out in paragraphs 138-149 above and represent the volume of work which the Department, if fully staffed and fully equipped with plant, is capable of completing by the end of 1955.

239. Estimated figures of ultimate cost and special expenditure, etc. (C) and of the annually recurrent maintenance charges resulting therefrom (A.R.) are given in brackets after each item. Further details are given in Appendix O.

A.—Irrigation Schemes.

(i)-(lix) Fifty-nine schemes are included for the improvement of some 300,000 acres of existing padi land and for the opening up of some 100,000 acres of new land for rice cultivation. (C. $20,361,000; A.R. $1,127,500).

B.—Drainage Schemes for Crops other than Rice.

(lx)-(lxxiv) Fifteen schemes are included for drainage rectification measures to be carried out in 300,000 acres of existing cultivated land. The major improvement schemes are situated along the West Coast of Johore where thousands of acres of coconut trees are going or have gone out of production. (C. $3,219,000; A.R. $326,000).

C.—River Conservancy Schemes.

(lxxv)-(lxxxii) The schemes included are for dredging of rivers, which have silted up badly, thus causing increased flooding of riparian lands. If this is permitted to continue, there is a danger of many square miles of agricultural land going out of cultivation because of prolonged flooding. (C. $3,535,000; A.R. $ Nil).

D.—Surveys and Investigations.

(lxxxiii) Funds are required to carry out essential exploratory work and to collect accurate information about rainfall, run-off, flood discharges, etc., on which to design sound drainage and irrigation schemes. (C. $1,320,000; A.R. $ Nil).

E.—Research.

(lxxxiv)-(lxxxv) A grant has been received from Colonial Development and Welfare funds for the construction of a hydraulic laboratory to replace the laboratory destroyed during the occupation. In this laboratory can be investigated, by means of scale models, the best designs for specific structures for all drainage, irrigation and river conservancy projects in Malaya. It is also intended to carry out model experiments on such river deviations as may be required for the benefit of the tin mining industry, and on items of harbour conservancy for the Marine Department. The permanent staff will consist of an Engineer, three Technical Assistants, and fifteen Draftsmen and Labourers. Institutional quarters for the laboratory staff will also be required. (C. $400,000; A.R. $22,000).

240. The capital cost of this programme and the addition to the annually recurrent expenditure which its adoption would involve are summarized below:

Capital and special expenditure $28,835,000.

Additional annually recurrent expenditure $1,475,000 (including cost of living allowance and expatriation pay).

ELECTRICITY.

241. The aim of the Central Electricity Board during the years 1950-1955 is to complete the Connaught Bridge Power Station as described in paragraph 153 above, and also if possible to make some headway with the Hydro-Electric and Grid schemes briefly mentioned in paragraph 154. The problem is mainly one of finding the necessary capital and various ways of doing this are at present being explored.

FILM UNIT.

242. The opportunities for expansion have been described in paragraphs 155-160 above. While commercial use of the Unit may be backward at first, there is an immediate need for educational films sponsored by Government or semi-public organizations.

243. Estimated figures of ultimate cost and special expenditure (C) and of the maximum annually recurrent maintenance charges resulting therefrom (A.R.) are given in brackets after each item. Further details are given in Appendix P.

A.—Buildings.

(i) Separate blocks are required for laboratory production, theatre and administration purposes with sound stage and cutting rooms and all the necessary ancillaries. (C. $295,000; A.R. $29,000).

B.—Equipment.

(ii) The items required are processing plant, printing, recording and cutting room equipment. (C. $136,000; A.R. $7,000).

(iii) Further equipment is needed to replace and modernize existing plant. (C. $24,000; A.R. $ Nil).

C.—TRAINING.

(iv) This would involve passages to and from the United Kingdom for four persons, together with cost of subsistence while in that country. (C. $12,000; A.R. $ Nil).

244. The capital cost of this programme and the addition to the annually recurrent expenditure which its adoption would involve are summarized below:

Capital and special expenditure $467,000.

Additional annually recurrent expenditure $36,000 (including cost of living allowance and expatriation pay).

HOUSING.

245. The urgency of the Housing problem has been described in paragraphs 161-163 above, and much thought has been given to the question of how to alleviate it. The result of these investigations is contained in a recently published White Paper No. 70 of 1949, recommending the establishment of a Housing Trust with powers to lease or purchase and hold land and buildings, to build houses, shops and shop-houses, and to sell, lease or let land and buildings. The Trust would be empowered compulsorily to acquire land in accordance with existing law, and to borrow and raise capital or make loans. A further recommendation is that the Trust should be able to require the owners of vacant lands in appropriate cases to develop them, or in default to pay a special "Development rate" (which would accrue to the Trust).

246. In order to employ the funds at its disposal most effectively the Trust would for some while probably confine its activities to the building of small houses and the development of building sites for quick resale, leaving to a later stage the building of houses for letting. The market for small houses and building lots is strictly limited, but even so it will take some time to meet the demand unless the Trust can negotiate short term loans, and thus accelerate its programme. At the later stage, when this demand has been satisfied and the Trust begins to invest in land and buildings with a view to leasing or letting them, a considerable increase of capital will be necessary. In order to raise this capital the principle will have to be accepted that economic rentals are to be charged on Trust properties, i.e., such rentals as would permit payment of interest on the money loaned together with amortisation of the capital.

247. The income of the Trust will consist of the Development rate already mentioned, the rents on its properties and the profit it will make on the resale of land and houses. The outgoings will be kept as low as possible and in order to do so it is hoped to make use of the services of Local Authorities, which would act as the Trust's agents. All recurrent expenses will be met out of the Trust's income.

248. As regards the capital required provision has been made (Appendix Q) for an initial capital grant from Government funds after which the Trust should be able to rely on its own borrowing powers, initially spending to the extent of some $2 million annually. The necessity for a further Government loan could be considered after the Trust had been in operation for a year or two.

LAND SETTLEMENT.

249. During the year 1949 a sum of approximately $485,000 was set aside by the States and Settlements to pay the cost of subsidies to padi planters, or for the extension and encouragement of padi planting. This was capital expenditure on new development and similar expenditure in

the future must accordingly be shown in the development plan even though it does not in fact add anything to the normal budget. As was stated in paragraphs 164-165 the total provision required cannot be calculated on an arbitrary basis and the amounts entered for each of the years 1950-1955 (Appendix R) merely follow the 1949 figure.

MARINE.

250. The maintenance of safe, easy and rapid sea communications by which the products of Malaya are shipped to the world's markets is a responsibility which cannot be neglected. Modernization of the plant, etc., used by the Marine Department (*see* paragraphs 166-171 above) will moreover lead to a reduction in maintenance costs as well as to increased efficiency.

251. Estimated figures of ultimate cost and special expenditure, etc. (C) and of the annually recurrent maintenance charges resulting therefrom (A.R.) are given in brackets after each item. Further details are given in Appendix S.

A.—Electrification of Watched Lights.

(i)-(vi) The equipment of the Muka Head, Pulau Rimau, Cape Rachado, Pulau Undau, One Fathom Bank and Kuala Selangor lighthouses should be modernized by the installation of diesel electric equipment. Staff can thereby be reduced. (C. $300,000; A.R. $ Nil).

B.—Dredging Plant.

(vii) Though the initial cost of a new dredge will be heavy, there would be a considerable saving on maintenance. (C. $1,000,000; A.R. $ Nil).

252. The capital cost of this programme and the addition to the annually recurrent expenditure which its adoption would involve are summarized below:

Capital and special expenditure $1,300,000.

Additional annually recurrent expenditure $ Nil (including cost of living allowance and expatriation pay).

METEOROLOGY.

253. The objectives of the Malayan Meteorological Service have been described in paragraphs 172-174 above. It is obvious that in actual planning there must be close liaison between this service and the Civil Aviation Department.

254. Estimated figures of ultimate cost and special expenditure, etc. (C) and of the maximum annually recurrent maintenance charges resulting therefrom (A.R.) are given in brackets after each item. Further details are given in Appendix T.

(i) To establish a forecast office in Kuala Lumpur additional officers will be required to fill the two senior officers' post now vacant, and to complete the establishment in the lower grades. Once this has been done it will be possible to comply with minimum international standards at one airport in the Federation. Increase of staff will necessitate the provision of institutional quarters. It is estimated that three senior and seven Class VIII institutional quarters will be required. (C. $164,000; A.R. $45,000).

(ii) Meteorological observing stations will be required on the airfields at Kuala Trengganu, Kluang and Batu Pahat, and observing staff will need

to be increased to establishment at Kuala Lumpur, Penang and 'Kota Bharu. Nine Class VIII institutional quarters will be required. (C. $133,000; A.R. $10,000).

(iii) It is desirable to make provision of radar wind observations to facilitate the operation of aircraft at high altitudes. (C. $220,000; A.R. $90,000).

255. The capital cost of this programme and the addition to the annually recurrent expenditure which its adoption would involve are summarized below:

Capital and special expenditure $517,000.

Additional annually recurrent expenditure $145,000 (including cost of living allowance and expatriation pay).

POSTS.

256. While ordinary postal business will be greatly facilitated by the developments suggested in paragraphs 175-180 above, the actual turnover is only partially affected. It may be taken for granted, however, that in certain areas which have developed rapidly since the end of the war (a period in which no new post offices have been built) postal business would expand rather rapidly if the necessary facilities were made available. Savings Banks, which may properly be regarded as an essential service, and not merely as a public utility are equally necessary in such areas. There are thus two very good reasons for considering that at least a beginning should be made with the building and motorization programme even if, for financial reasons, the remainder of the programme has to be deferred.

257. Estimated figures of ultimate cost and special expenditure, etc. (C), and of the annually recurrent maintenance charges resulting therefrom (A.R.) are given in brackets after each item. Further details are given in Appendix U.

A.—Buildings, etc.

(i)-(x) Ten new post offices to be built at sites to be decided. (C. $330,000; A.R. $40,000).

(xi) Replacement of Institutional quarters of the Postmaster, Ipoh, which were destroyed by enemy action in 1941. (C. $30,000; A.R. $ Nil).

(xii) The question of a new General Post Office has been under discussion for twenty years. The present building is badly arranged, both internally and in respect of delivery yards, etc. Postal business has already increased to such an extent that the office has had to be spread over three buildings, and it is certain to expand even more rapidly in the future. The provision of a suitably designed and up-to-date building cannot be delayed any longer. The proposal is to erect one of sufficient size to be able to provide office space additional to that required for postal purposes only, and thus relieve to some extent the present congestion in Government offices. (C. $2,000,000; A.R. $ Nil).

B.—Transport.

(xiii) More mechanized transport is needed to accelerate handling of mails. (C. $227,000; A.R. $23,000).

258. The capital cost of this programme and the addition to the annually recurrent expenditure which its adoption would involve are summarized below:

Capital and special expenditure $2,587,000.

Additional annually recurrent expenditure $64,000 (including cost of living allowance and expatriation pay).

RAILWAY.

259. A general description of the development possibilities has been given in paragraphs 181-185 above. At the time of writing it is still not possible to say which, if either (or both) of the proposed schemes for port development are likely to be approved and carried through during the six years 1950-1955. As regards the East/West railway, this is a development work which, on account of its expense, could best be undertaken during a period of trade depression when lower construction costs would prevail.

ROAD TRANSPORT.

260. The actual 1949 revenue of the Road Transport Department was $9,339,324, compared with an expenditure (including cost of living allowances, housing allowances and expatriation pay) of $727,452. As improvement of existing facilities will not lead to any enlargement of revenue or economies in staff only the more urgent part of the programme contained in paragraphs 186-189 above is planned to be carried out during the years 1950-1955. On the other hand the cost of enforcing the new safety provisions mentioned in paragraph 188 will be more than met by additional revenue.

261. Estimated figures of ultimate cost and special expenditure, etc. (C) and of the annually recurrent maintenance charges resulting therefrom (A.R.) are given in brackets after each item. Further details are given in Appendix V.

A.—Improvement of Existing Facilities.

(i) An office, inspection facilities and quarters are required for the Registrar and Inspector of Motor Vehicles, Johore, as the accommodation now in use is required by the State Government, and alternative accommodation can only be made available temporarily. (C. $146,000; A.R. $ Nil).

(ii) An office and inspection facilities are required for the Registrar and Inspector of Motor Vehicles, Negri Sembilan. The present rented accommodation is inconvenient and inadequate. (C. $70,000; A.R. $ Nil). A site for a new building is available.

(iii) An office and inspection facilities are required for the Registrar and Inspector of Motor Vehicles, Kelantan and Trengganu. There has been a big increase in the number of motor vehicles registered in these States and the present rented accommodation is inconvenient and inadequate. (C. $97,000; A.R. $ Nil). The capital cost includes a sum for the purchase of land, as no suitable State land is available.

(iv) Covered inspection ramps and an inspection shed are needed for the Registrar and Inspector of Motor Vehicles, Perak. Inspection in the open leads to inefficiency and loss of time, particularly in wet weather. (C. $7,000; A.R. $ Nil).

(v) Covered inspection ramps are needed for the Registrar and Inspector of Motor Vehicles, Malacca, for the same reasons. (C. $5,000; A.R. $ Nil).

B.—Creation of New Facilities.

(vi) If legislation now planned is brought into force, a system will be introduced of certification of all commercial vehicles for construction, equipment and general fitness for use. (C. $40,000; A.R. $22,000). Revenue, based on present registrations, would be approximately $139,000 per annum.

262. The capital cost of this programme and the addition to the annually recurrent expenditure which its adoption would involve are summarized below:

Capital and special expenditure $365,000.

Additional annually recurrent expenditure $22,000 (including cost of living allowances and expatriation pay).

TELECOMMUNICATIONS.

263. Not all of the objectives mentioned in paragraphs 190-198 can be attained by 1955 and it is therefore necessary to make a selection of works to be carried out. In making this selection it is very necessary to maintain a balanced growth since development in any one portion of the Telecommunications network affects the other parts of the network. If for example the number of subscribers on an exchange is increased considerably it is necessary at the same time to provide adequate junction outlets to the parent trunk exchange. The choice of works has also been governed by the following considerations:

(i) The conversion of small manual exchanges to automatic working would effect a considerable saving in annually recurrent expenditure by the elimination of operators' salaries.

(ii) The execution of certain major works in the towns would enable the waiting lists of subscribers to be largely eliminated and would give a good return in revenue. It is estimated that a total of 20,000 subscribers could be reached by 1955.

(iii) Improvement in the Main Zone to Zone Trunk network by the introduction of V.H.F. Wireless links would reduce delays on trunk traffic and free some existing circuits for improvements on other routes. The reduction in delays would automatically lead to increased traffic and a corresponding increase in revenue.

264. In regard to the projects mentioned below it should be appreciated that costs are calculated on the basis that there will be no substantial change in the present method of operation of the Telecommunications Department. It is also to be noted that contributions to a renewal fund or depreciation on plant are not included in annually recurrent expenditure. Estimated figures of ultimate cost and special expenditure, etc. (C) and of the annually recurrent maintenance charges resulting therefrom (A.R.) are given in brackets after each item. Further details are given in Appendix W.

A.—Improvement of Internal Telephone Services.

(i)-(viii) During the period 1950-1955 it is estimated that 135 small rural automatic exchanges of less than 100 lines capacity will be required for the provision of new services or to extend existing services. Five larger automatic exchanges of between 100-1,000 line capacity are also required. In addition to the new automatic exchange for Kuala Lumpur (4,200 lines) which is now being provided, and the new Penang Automatic Exchange (3,200 lines) which is being manufactured a new exchange is required for Ipoh of about 3,000 lines capacity.

A number of renewals and extensions to existing Manual Exchanges will also be required to enable waiting subscribers to be connected, to increase the facilities for handling trunk traffic, and for giving manual assistance to subscribers connected to Rural Automatic Exchanges. Eight of these exchanges will be of less than 200 lines capacity, 20 will not exceed 400 lines capacity and there will be six large Manual Exchanges of over 400 lines. (C. $6,370,000; A.R. $248,000).

(ix)-(xiii) The provision of adequate accommodation for plant is an essential pre-requisite to the successful execution of the exchange development programme. Since 1940 there has been almost a complete cessation of the construction of buildings for telephone exchanges. Many small exchanges are now housed in Police Stations and Post Offices, in accommodation that is far from satisfactory and which is detrimental to the life of the plant.

During 1950-1955 the Department will require the provision of 36 Standard Rural Automatic Exchange buildings to make up for the back-log of development and to cover the normal requirements of growth. In addition two larger buildings will be required to provide accommodation for trunk exchanges and some of the medium sized automatic exchanges. Larger buildings are also required for Penang and Ipoh as well as a suitable building in Kuala Lumpur for the Departmental Training Centre. (C. $1,674,000; A.R. $54,000).

(xiv)-(xix) At the present time a major obstacle to the introduction of a Demand Trunk Service is the lack of an adequate number of circuits in the trunk and junction network, and although increases have been effected each year on many routes these are not even keeping pace with the growth of trunk traffic. The inadequacy of the present grade of service offered on the trunk network is responsible for a large direct loss of revenue. It is therefore essential that a very large proportion of the capital expenditure available in the immediate future should be invested in Trunk and Junction Line plant, moreover this is most likely to show an early return on the capital.

The reinforcement of the existing main trunk routes between the seven Major Trunk Zone Centres, Singapore, Kluang, Malacca, Kuala Lumpur, Ipoh, Penang and Kota Bharu is of primary importance. To accomplish this it is essential to introduce a comprehensive system of multichannel very high frequency radio links between Singapore, Malacca, Kuala Lumpur and Penang, thus releasing some of the existing physical circuits for use between other centres. In all it is estimated that 50 additional Zone to Zone circuits will be required by 1955.

Very large increases of carrier and physical circuits are also required between the Zones Centres and the Group Centres based on them and between certain Group Centres. In these categories 120 additional circuits will be required by 1955.

Finally with the introduction of many more small automatic exchanges it is essential to upgrade the junction routes between Group, Minor and Dependant exchanges. The extent to which this is to be carried out depends upon the grade of service to be offered. If it is permissible for one telephone call in fifty to be lost due to insufficiency of junctions then the grade of service on that route is said to be one in fifty. If all routes are to be given a grade of service of one in fifty, which is the standard normally adopted for small Automatic exchanges parented on a distant manual exchange, then it is estimated that 636 more circuits in this category will have to be provided by 1955. If, however, a much lower grade of service is permitted on junction routes then about 350 circuits would suffice. (C. $14,031,000; A.R. $656,000).

(xx)-(xxv) As mentioned in Part II there are at present about 13,500 subscribers connected to the telephone system. It is estimated that by 1955 there will be at least 20,000 subscribers. In order to connect the additional 6,500 subscribers considerable capital investment in subscribers line, plant and installations is necessary. In the main centres Kuala Lumpur, Penang and Ipoh, extensive underground cable schemes are

necessary and work is already in progress in Kuala Lumpur. Smaller cable schemes are needed in many of the lesser towns to enable waiting subscribers to be connected and to cater for estimated development.

In addition to underground cabling in the towns a considerable number of overhead subscribers lines will be required in the rural districts.

Lastly each new subscriber will need providing with a telephone or private branch exchange installation. (C. $7,100,000; A.R. $268,000).

B.—Telegraph Service.

(xxvi)-(xxvii) The major portion of the expenditure required for the telegraph services is needed for the provision of multi-channel voice frequency telegraph systems and the provision of teleprinter switching facilities at the main centres. (C. $252,000; A.R. $19,000).

C.—Training.

(xxviii)-(xxix) The Department is anxious to continue the practice of sending a number of scholarship students to the United Kingdom annually for three-year courses to enable them to obtain full Telecommunication Engineering qualifications. This course also permits these students to study British Post Office practice and to gain some experience in the offices and factories of the large manufacturers of Telecommunications equipment and should give them a breadth of view and much wider experience than they could possibly hope to acquire in Malaya.

At the same time it is absolutely essential to strengthen the training arrangements within Malaya for the Technical Cadets, Youths-in-Training, Apprentices and other grades. This training must of necessity have a pronounced practical bias and is designed to familiarise the students with the equipment they are responsible for installing and maintaining. In order to provide this training it is necessary to acquire modern plant such as teleprinters, voice frequency telegraph systems, carrier systems, and automatic telephone switchgear.

Accommodation and financial provision to carry out and expand this policy has therefore been inserted in the draft plan. (C. $177,000; A.R. $ Nil).

265. The capital cost of this programme and the addition to the annually recurrent expenditure which its adoption would involve are summarised below:

Capital and special expenditure $29,604,000.

Additional annually recurrent expenditure $1,245,000 (including cost of living allowance and expatriation pay).

PUBLIC WORKS.

266. It has been made clear in paragraphs 199-207 above, in which the long term objectives of the Public Works Department were discussed, that an increase in the capacity of this Department is no less fundamental to the success of the Development Plan than is the provision of the necessary finance. In so far therefore as it may be found necessary to reduce the provision made under the last of the items listed below, it will also be necessary to reduce by a similar proportion the expenditure on projects appearing in this Part of the Plan which depend upon the Public Works Department for their execution.

267. Estimated figures of ultimate cost and special expenditure, etc. (C) and of the annually recurrent maintenance charges resulting therefrom (A.R.) are given in brackets after each item. Further details are given in Appendix X.

A.—Roads.

(i)-(xxvi) An attempt has been made to select what appear to be the more important projects for inclusion in the 1950-55 programme, but the resulting list will no doubt require revision before it can be taken as a working programme. The proposal as it stands at present is to build or improve about 430 miles of road over a period of six years. If the engineering capacity of the Public Works Department which is now at its lowest ebb gradually improves it is considered that a programme of this magnitude would be within the capacity of its technical staff. (C. $21,957,000; A.R. $779,000).

B.—Bridges.

(xxvii)-(cxxii) First priority must be given to the bridges on the main trunk road from Alor Star to Johore Bharu and particularly at the northern end of it where there are several major bridges which could only be repaired in a makeshift manner after the liberation. These Bailey bridges have a strictly limited life and their upkeep, as well as the maintenance of the timber bridges, impose a very heavy annual charge. As with roads, if the engineering capacity of the Public Works Department were to improve, this programme should not be beyond the powers of its technical staff. (C. $10,892,000; A.R. $ Nil).

C.—Water Supplies.

(cxxiii)-(cliii) Out of some sixty schemes the details of which have been worked out, thirty-one have been provisionally selected for execution during the six year period. (C. $26,628,000; A.R. $2,786,000).

(cliv) In addition to these there is a project for a Kuala Lumpur water supply, estimated to cost $12 million. As it is uncertain what will be the extent of the Government interest in the financing of this project no provision is made for it at the present stage.

D.—Workshops.

(clv)-(clvi) Facilities existing in Kelantan and Trengganu are poor and it is necessary that the workshops there be brought up-to-date and fully equipped. (C. $184,000; A.R. $3,000).

E.—Housing.

(clvii)-(clviii) The general principal followed in working out the amount of additional housing involved in the six-year programme is that "institutional" quarters (i.e., those attached to schools, hospitals, etc.) should be built at the same time as the institutions themselves. The cost of erecting quarters of this type has accordingly been included in the Department proposals. Non-institutional quarters whether intended for the use of a particular Department or for general allocation to Government servants are also required in such numbers that the present ratio of Government staff provided with housing will be gradually improved. Arrears of building of this type are far too heavy to be made up all at once, but it would be obviously unreasonable if a development plan did not go some of the way to improve the situation in this respect. It will be seen than even this limited amount of building will add sensibly to the cost of the development programme. There are however considerable savings in housing allowances. (C. $8,000,000; A.R. $ Nil).

F.—General.

(clix) The very tentative estimates of capital expenditure likely to be necessary if the Draft programme for the six years 1950-55 is found practicable are given in paragraph 48 of Chapter I and in paragraph 270

[From a drawing by Patricia Morley.

Head of an Indian child.

below. Not all of these amounts represent Public Works Department services but a very large part of them do, and a considerable expansion of that Department would be necessary. (C. $ Nil; A.R. $1,000,000).

268. The capital cost of this programme and the addition to the annually recurrent expenditure which its adoption would involve are summarized below:

Capital and special expenditure $67,661,000.

Additional annually recurrent expenditure $4,568,000 (including cost of living allowance and expatriation pay).

SUMMARY OF DRAFT 1950-1955 PROGRAMME.

269. A summary of the expenditure on the six year Departmental programmes outlined in this Chapter, to which has to be added the expenditure on a six-year programme for the development of the Social Services dealt with in Chapter I, is to be found in Appendix Y. No distinction is made there between State, Settlement and Federal expenditure.

PART IV.—CONCLUSION.

270. This Chapter can be briefly summarized by saying that Part III presents a plan for the development of the national resources and utilities during the six years 1950-1955. The cost to Government of this draft plan will be, very approximately, $159 million in capital expenditure and $11 million in additional annually recurrent expenditure—extra, that is to say, to the estimated annually recurrent expenditure of $25 million which was provided for these purposes in 1949. The above totals exclude any expenditure on the Railway and on electrical development (the Central Electricity Board not being dependent upon Government for its development financing), as well as all but a part of the expenditure on a proposed Housing programme. They also exclude expenditure on many excellent schemes for which, for technical or financial reasons, no place can be found in the six-year programme.

271. This six-year programme is an extract from a more general plan given under the heading of "Long term objectives" in Part II. These objectives have been formulated with due regard to existing policy, which is in some cases well established and in others in the process of evolution.

272. Part I consists of an Introduction, in which an attempt is made to set down the general principles which should be observed in drawing up a plan of this nature, and in determining what to put into it. It contains some allusions to the all important financial factor, detailed consideration of which is left to a subsequent Chapter.

APPENDIX E.

AGRICULTURAL PROGRAMME, 1950-1955.

(All figures are subject to revision.)

No.	Schemes Proposed. (All Federal Expenditure.)	Capital Expenditure ('000 dollars).										
		1950.	1951.	1952.	1953.	1954.	1955.	Total.	From C.D. & W.	From Loans. 1949.	From Loans. Projected.	From Federation Funds.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
i	Fundamental Research and Crop and Animal Husbandry Investigations	..	302	400	500	300	100	1,602	..	..	..	1,602
ii	Agricultural Economic Survey	..	25	23	27	..	..	75	75	..	..	..
iii	Provision of planting material of rubber	234	205	205	193	..	..	837	837	..	..	..
iv	Mechanical cultivation of Rice	68	20	10	..	..	..	98	98	..	..	..
v	Isolation nursery	40	11	12	12	..	..	75	75	..	..	..
vi	Higher Agricultural Education	..	90	..	..	..	..	90	..	..	..	90
vii	Development of the Pineapple Industry	28	28	30	..	..	..	86	86	..	..	..
	Total ..	370	681	680	732	300	100	2,863	1,171	..	..	1,692

No.	Schemes Proposed. (All Federal Expenditure.)	Recurrent Expenditure ('000 dollars).							Notes and Comments.
		1950.	1951.	1952.	1953.	1954.	1955.	Rising to (maximum).	
		(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
i	Fundamental Research and Crop and Animal Husbandry Investigations	..	375	500	625	750	875	875	
ii	Agricultural Economic Survey	..	..	..	..	..	..	..	C.D.W. allocation not yet applied for
iii	Provision of planting material of rubber	..	..	..	..	..	..	..	C.D.W. Scheme D. 1176
iv	Mechanical cultivation of Rice	..	..	..	..	..	..	..	C.D.W. Scheme D. 669
v	Isolation nursery	..	..	..	..	..	..	..	C.D.W. Scheme D. 1220
vi	Higher Agricultural Education	..	..	35	36	37	37	42	C.D.W. allocation not yet approved
vii	Development of the Pineapple Industry	..	..	..	..	..	..	..	
	Total ..	..	375	535	661	787	912	917	

Appendix F.

FISHERIES PROGRAMME, 1950-1955.

(All figures are subject to revision.)

No.	Schemes Proposed.	Capital Expenditure ('000 dollars)										
		1950.	1951.	1952.	1953.	1954.	1955.	Total.	From C.D. & W.	From Loans. 1949.	From Loans. Projected.	From Federation Funds.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	A.—RESEARCH.											
i	Fresh Water Fisheries Institute *	193	1,517	458	..	..	..	2,168	2,168	..	..	..
ii	Marine Fisheries Laboratory *	..	..	..	..	..	..	..	..	..	..	..
	B.—APPLICATION OF RESEARCH.											
iii	Kelantan Fish Marketing Scheme †	50	850	200	..	..	..	1,100	1,100	..	..	..
iv	Marine Fisheries School, Singapore *	..	..	..	..	..	..	..	..	..	..	..
	Total ..	243	2,367	658	..	..	..	3,268	3,268	..	..	..

No.	Schemes Proposed.	Recurrent Expenditure ('000 dollars).							Notes and Comments.
		1950.	1951.	1952.	1953.	1954.	1955.	Rising to (maximum).	
		(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
	A.—RESEARCH.								
i	Fresh Water Fisheries Institute *	..	..	..	..	..	..	20	C.D.W. Scheme R. 288, R. 288A
ii	Marine Fisheries Laboratory *	..	30	60	75	75	75	180	C.D.W. Scheme R. 26
	B.—APPLICATION OF RESEARCH.								
iii	Kelantan Fish Marketing Scheme †	..	..	..	..	..	..	..	C.D.W. allocation not yet applied for
iv	Marine Fisheries School, Singapore *	..	12	12	12	12	12	12	
	Total ..	..	42	72	87	87	87	212	

* Federal Expenditure. † State or Settlement Expenditure.

APPENDIX G.

FORESTRY PROGRAMME, 1950-1955.

(All figures are subject to revision.)

No.	Schemes Proposed.	CAPITAL EXPENDITURE ('000 DOLLARS).										
		1950.	1951.	1952.	1953.	1954.	1955.	Total.	From C.D. & W.	From Loans. 1949.	From Loans. Projected.	From Federation Funds.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	A.—TRAINING.											
i	Higher Education *	..	..	..	..	..	..	..	..	..	..	..
ii	Expansion of Forest School, Kepong *	..	137	..	..	..	..	137	..	..	..	137
	B.—SILVICULTURE.											
iii	Increase of allocation †	..	..	..	..	..	..	..	..	..	..	..
	C.—REAFFORESTATION.											
iv	Planting *	..	60	60	60	60	60	300	..	..	..	300
	D.—ROAD CONSTRUCTION.											
v	Forest Roads *	600	600	600	600	600	600	3,600	..	3,000	600	..
	E.—HOUSING OF STAFF.											
vi	Quarters ‡	31	109	100	100	100	100	540	..	..	..	540
	F.—RESEARCH.											
vii	Timber Research Laboratory *	400	251	..	..	..	..	651	651	..	..	..
viii	Reclamation of degraded soils *	..	50	..	..	..	..	50	50	..	..	..
ix	Experimental pulping plant *	..	..	50	..	..	..	50	50	..	..	..
	G.—PILOT COMMERCIAL PROJECTS.											
x	Fibre board plant *	..	..	400	..	..	..	400	..	..	400	..
xi	Sawmill *	..	..	..	456	..	..	456	..	..	456	..
xii	Timber depôts *	..	..	..	100	200	100	400	..	..	400	..
	Total ..	1,031	1,207	1,210	1,316	960	860	6,584	751	3,000	1,856	977

* Federal Expenditure. † Federal or State/Settlement Expenditure. ‡ State or Settlement Expenditure.

APPENDIX G—(*cont.*)

FORESTRY PROGRAMME, 1950-1955—(*cont.*)

No.	Schemes Proposed.	RECURRENT EXPENDITURE ('000 DOLLARS).							Notes and Comments.
		1950.	1951.	1952.	1953.	1954.	1955.	Rising to (maximum).	
		(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
	A.—TRAINING.								
i	Higher Education •	6	6	12	12	12	12	12	
ii	Expansion of Forest School, Kepong •	..	..	3	3	3	3	3	
	B.—SILVICULTURE.								
iii	Increase of allocation †	..	126	126	126	126	126	126	Supplementary to $374,000 provided in 1950
	C.—REAFFORESTATION.								
iv	Planting •	..	4	8	12	16	20	20	
	D.—ROAD CONSTRUCTION.								
v	Forest Roads •	..	50	70	90	110	130	150	
	E.—HOUSING OF STAFF.								
vi	Quarters ‡	..	4	7	10	13	16	16	
	F.—RESEARCH.								
vii	Timber Research Laboratory •	..	33	33	33	33	33	50	C.D.W. Schemes R. 208, 208A (to include part of recurrent costs)
viii	Reclamation of degraded soils •	..	50	50	50	50	50	..	C.D.W. allocation not yet approved (to include recurrent costs)
ix	Experimental pulping plant •	..	..	20	20	20	20	20	C.D.W. allocation not yet applied for
	G.—PILOT COMMERCIAL PROJECTS.								
x	Fibre board plant •	..	..	75	75	75	75	75	
xi	Sawmill •	..	..	..	180	180	180	180	
xii	Timber depôts •	..	..	..	17	51	68	68	
	Total ..	6	273	404	628	689	733	720	

• Federal Expenditure. † Federal or State/Settlement Expenditure. ‡ State or Settlement Expenditure.

APPENDIX H.

GEOLOGICAL PROGRAMME, 1950-1955.

(All figures are subject to revision.)

No.	Schemes Proposed. (All Federal Expenditure.)	Capital Expenditure ('000 dollars).									
		1950.	1951.	1952.	1953.	1954.	1955.	Total.	From C.D. & W.	From Loans. 1949.	From Loans. Projected.	From Federation Funds.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
I	Expansion of the Survey	11	11	11	25	25	25	108	108	..	..	..
II	Buildings and Equipment	646	591	200	55	..	..	1,492	1,492	..	..	..
III	Prospecting	5	5	..	..	..	..	10	10	..	..	..
	Total ..	662	607	211	80	25	25	1,610	1,610	..	..	..

No.	Schemes Proposed. (All Federal Expenditure.)	Recurrent Expenditure ('000 dollars).							Notes and Comments.
		1950.	1951.	1952.	1953.	1954.	1955.	Thereafter rising to (maximum).	
		(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
I	Expansion of the Survey	93	185	277	349	375	385	400	C.D.W. allocation not yet approved (to include 1950-1955 recurrent costs)
II	Buildings and Equipment	..	1	3	4	6	8	10	
III	Prospecting	20	45	66	70	70	70	70	
	Total ..	113	231	346	423	451	463	480	

Appendix I.

MINES PROGRAMME, 1950-1955.

(All figures are subject to revision.)

No.	Schemes Proposed. (All Federal Expenditure.)	Capital Expenditure ('000 dollars).										
		1950.	1951.	1952.	1953.	1954.	1955.	Total.	From C.D. & W.	From Loans.		From Federation Funds.
										1949.	Projected.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
i	Estimation and Valuation of Ore Reserves	..	107	10	10	10	10	147	..	..	..	147
ii	Investigations into Mine-operation, etc.	..	..	158	10	10	20	198	..	..	..	198
iii	Education in Mining	..	..	..	5	1	..	6	..	..	..	6
iv	Information services	..	..	..	8	12	7	27	..	..	..	27
	Total ..	..	107	168	33	33	37	378	..	..	..	378

No.	Schemes Proposed. (All Federal Expenditure.)	Recurrent Expenditure ('000 dollars).							Notes and Comments.
		1950.	1951.	1952.	1953.	1954.	1955.	Rising to (maximum).	
		(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
i	Estimation and Valuation of Ore Reserves	..	70	136	210	210	210	210	
ii	Investigations into Mine-operation, etc.	..	..	20	44	55	55	55	
iii	Education in Mining	..	..	..	2	3	3	4	
iv	Information services	..	..	..	5	5	5	6	
	Total ..	..	70	156	261	273	273	275	

APPENDIX J.

VETERINARY PROGRAMME, 1950-1955.

(All figures are subject to revision.)

No.	Schemes Proposed.	Capital Expenditure ('000 dollars).								From Loans.		From Federation Funds.
		1950.	1951.	1952.	1953.	1954.	1955.	Total.	From C.D. & W.	1949.	Projected.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	A.—IMPROVEMENT OF GRAZING.											
i	Purchase of land—token *	..	..	..	1	..	..	1	..	..	..	1
	B.—IMPROVEMENT OF STOCK.											
ii	Stud bulls †	..	75	25	..	..	..	100	..	..	..	100
iii	Premium bulls scheme †	..	..	..	..	..	..	..	..	..	..	..
	C.—CONTROL OF DISEASE.											
iv	Animal Infirmary *	..	..	..	..	20	50	70	..	..	70	..
	D.—RESEARCH.											
v	Laboratory and school †	1,062	587	195	..	..	..	1,401	1,401	..	..	..
vi	Farm †							443	443	..	..	..
	Total ..	1,062	662	220	1	20	50	2,015	1,844	..	70	101

No.	Schemes Proposed.	Recurrent Expenditure ('000 dollars).							Notes and Comments.
		1950.	1951.	1952.	1953.	1954.	1955.	Rising to (maximum).	
		(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
	A.—IMPROVEMENT OF GRAZING.								
i	Purchase of land—token *	..	..	..	..	..	..	..	
	B.—IMPROVEMENT OF STOCK.								
ii	Stud bulls †	..	42	42	42	42	42	42	
iii	Premium bulls scheme †	..	1	3	5	8	10	10	
	C.—CONTROL OF DISEASE.								
iv	Animal Infirmary *	..	..	..	..	7	8	10	
	D.—RESEARCH.								
v	Laboratory and school †	..	40	100	155	200	217	217	C.D.W. allocation not yet approved
vi	Farm †	..	30	50	50	60	77	77	
	Total ..	..	113	195	252	317	354	356	

* State or Settlement Expenditure. † Federal Expenditure.

Appendix K.

CO-OPERATIVE SOCIETIES PROGRAMME, 1950-1955.

(All figures are subject to revision.)

No.	Schemes Proposed. (All Federal Expenditure.)	Capital Expenditure ('000 dollars).										
		1950.	1951.	1952.	1953.	1954.	1955.	Total.	From C.D. & W.	From Loans.		From Federation Funds.
										1949.	Projected.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1	Staff and Materials	..	1	2	2	..	..	5	..	..	..	5
	Total ..	..	1	2	2	..	..	5	..	..	..	5

No.	Schemes Proposed. (All Federal Expenditure.)	Recurrent Expenditure ('000 dollars).							Notes and Comments.
		1950.	1951.	1952.	1953.	1954.	1955.	Rising to (maximum).	
		(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
1	Staff and Materials	..	55	60	65	70	75	75	
	Total ..	..	55	60	65	70	75	75	

Appendix L.

INFORMATION SERVICES, 1950-1955.

(All figures are subject to revision.)

No.	Schemes Proposed. (All Federal Expenditure.)	Capital Expenditure ('000 dollars).										
		1950.	1951.	1952.	1953.	1954.	1955.	Total.	From C.D. & W.	From Loans. 1949.	From Loans. Projected.	From Federation Funds.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	A.—PRESS SERVICES.											
i	Translators	..	..	..	..	..	..	..	..	..	..	..
	B.—PUBLICATIONS.											
ii	Publications Bureau	..	..	150	200	50	..	400	400	..	..	..
	C.—AURAL MEDIA.											
iii	Travelling units	..	55	55	55	55	..	220	..	..	..	220
iv	Information Officers	..	..	..	..	..	..	..	..	..	..	..
	Total ..	..	55	205	255	105	..	620	400	..	..	220

No.	Schemes Proposed. (All Federal Expenditure.)	Recurrent Expenditure ('000 dollars).							Notes and Comments.
		1950.	1951.	1952.	1953.	1954.	1955.	Rising to (maximum).	
		(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
	A.—PRESS SERVICES.								
i	Translators	..	10	20	30	39	39	39	
	B.—PUBLICATIONS.								
ii	Publications Bureau	..	..	..	..	..	..	..	C.D.W. allocation not yet applied for
	C.—AURAL MEDIA.								
iii	Travelling units	..	15	30	45	58	58	58	
iv	Information Officers	..	5	10	45	15	20	23	
	Total ..	..	30	60	90	112	117	120	

APPENDIX M.

BROADCASTING PROGRAMME, 1950-1955.

(All figures are subject to rivision.)

No.	Schemes Proposed. (All Federal Expenditure.)	CAPITAL EXPENDITURE ('000 DOLLARS).										
		1950.	1951.	1952.	1953.	1954.	1955.	Total.	From C.D. & W.	From Loans. 1949.	From Loans. Projected.	From Federation Funds.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	A.—COMPLETION OF EXISTING NETWORK.											
i	Transmitting station, Penang	30	..	..	..	..	..	30	..	..	..	30
ii	Transmitting station, Kajang	150	..	..	..	..	..	150	..	..	..	150
iii	New buildings, etc., Malacca	..	..	129	..	..	..	129	..	..	129	..
	B.—NEW PROGRAMME CIRCUIT.											
iv	V. H. F. Equipment	..	..	..	..	..	..	..	..	..	..	..
	C.—COMMUNITY LISTENING.											
v	Provision of sets	358	..	..	..	..	..	358	358	..	..	..
	D.—BROADCASTS TO SCHOOLS.											
vi	Purchase and upkeep of sets	..	80	80	80	80	80	400	..	..	..	400
	Total	538	80	209	80	80	80	1,067	358	..	129	580

No.	Schemes Proposed. (All Federal Expenditure.)	RECURRENT EXPENDITURE ('000 DOLLARS).							Notes and Comments.
		1950.	1951.	1952.	1953.	1954.	1955.	Rising to (maximum).	
		(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
	A.—COMPLETION OF EXISTING NETWORK.								
i	Transmitting station, Penang	..	..	..	..	..	..	..	
ii	Transmitting station, Kajang	..	..	..	..	..	..	..	
iii	New buildings, etc., Malacca	..	..	7	7	8	8	8	
	B.—NEW PROGRAMME CIRCUIT.								
iv	V.H.F. Equipment	..	..	..	..	..	..	..	Provision made in Appendix W. (Telecommunications)
	C.—COMMUNITY LISTENING.								
v	Provision of sets	..	14	29	29	29	29	29	C.D.W. Scheme No. D 1327
	D.—BROADCASTS TO SCHOOLS.								
vi	Purchase and upkeep of sets	..	..	..	..	..	..	..	
	Total	..	14	36	36	37	37	37	

APPENDIX N.

CIVIL AVIATION PROGRAMME, 1950-1955.

(All figures are subject to revision.)

No.	Schemes Proposed. (All Federal Expenditure.)	Capital Expenditure ('000 dollars).										
		1950.	1951.	1952.	1953.	1954.	1955.	Total.	From C.D. & W.	From Loans.		From Federation Funds.
										1949.	Projected.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	A.—INTERNATIONAL AIRPORTS.											
i	Penang (Bayan Lepas)	204	..	75	85	50	35	449	..	..	449	..
ii	Kota Bahru	..	3	150	50	68	25	296	..	..	296	..
iii	Kuala Lumpur	101	672	160	200	175	75	1,383	..	..	1,282	101
	B.—EXISTING AIRFIELDS.											
iv	Ipoh	..	10	140	90	48	35	323	..	..	323	..
v	Taiping	..	22	120	50	20	33	245	..	..	245	..
vi	Alor Star	..	..	90	35	30	17	172	..	..	172	..
vii	Kuantan	..	38	20	85	80	10	233	..	..	233	..
	C.—PROPOSED AIRFIELDS.											
viii	Malacca	..	..	200	180	150	98	628	..	..	..	628
	D.—LANDING GROUNDS.											
ix	Earthworks (token)	..	..	..	..	..	1	1	..	..	..	1
	Total ..	305	745	955	775	621	329	3,730	..	..	3,000	730

APPENDIX N—(*cont.*)

CIVIL AVIATION PROGRAMME, 1950-1955—(*cont.*)

No.	Schemes Proposed. (All Federal Expenditure.)	Recurrent Expenditure ('000 dollars).							Notes and Comments.
		1950.	1951.	1952.	1953.	1954.	1955.	Rising to (maximum).	
		(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
	A.—INTERNATIONAL AIRPORTS.								
i	Penang (Bayan Lepas)	5	5	7	9	9	9	10	
ii	Kota Bahru	..	..	4	5	6	7	8	
iii	Kuala Lumpur	2	17	19	24	29	30	35	
	B.—EXISTING AIRFIELDS.								
iv	Ipoh	..	..	4	5	6	7	8	
v	Taiping	..	..	2	3	4	5	6	
vi	Alor Star	..	..	1	1	2	3	4	
vii	Kuantan	..	1	1	2	2	4	6	
	C.—PROPOSED AIRFIELDS.								
viii	Malacca	..	..	5	10	14	16	16	
	D.—LANDING GROUNDS.								
ix	Earthworks (token)	..	..	..	..	..	..	..	
	Total ..	7	23	43	59	72	81	93	

APPENDIX O.

DRAINAGE AND IRRIGATION PROGRAMME, 1950-1955.

(All figures are subject to revision.)

No.	Schemes Proposed.	Capital Expenditure ('000 dollars).										
		1950.	1951.	1952.	1953.	1954.	1955.	Total.	From C.D. & W.	From Loans.		From Federation Funds.
										1949.	Projected.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	A.—IRRIGATION.											
	Johore.											
i	Balang Scheme •	31	..	..	..	..	..	31	..	31	..	..
ii	Assam Bubok Scheme †	50	100	100	..	..	..	250	..	..	..	250
iii	Sungei Ring Scheme •	59	..	..	..	..	..	59	..	59	..	..
iv	Lenga Scheme, Muar †	..	..	..	60	40	20	120	..	..	..	120
v	Pagoh Scheme •	..	55	55	..	..	..	110	..	110	..	..
vi	Sawah Serakek Scheme •	18	..	..	..	..	..	18	..	18	..	..
vii	Sawah Gatom Scheme †	23	..	..	..	..	..	23	..	..	..	23
viii	Sawah Lenga, Segamat †	10	..	..	..	..	..	10	..	..	..	10
ix	Ulu Benut Scheme †	22	80	48	..	..	..	150	..	..	..	150
x	Ayer Tawar Scheme †	15	..	..	..	..	..	15	..	..	..	15
xi	Kahang Scheme •	30	50	40	21	..	..	141	..	..	..	141
xii	Padang Endau Scheme •	43	..	..	..	..	..	43	..	..	..	43
	Kedah.											
xiii	Kubang Pasu Scheme •	1,350	1,000	1,000	800	600	350	5,100	..	5,100	..	..
xiv	Kota Bukit Meriam Scheme •	60	..	..	..	..	..	60	..	60	..	..
xv	Banda Bahru Scheme †	..	175	125	..	..	..	300	..	..	..	300
xvi	Sinkir Semeling Scheme †	..	..	225	125	..	..	350	..	..	..	350
	Kelantan.											
xvii	Salor (Pumping) •	94	..	..	..	..	..	94	..	94	..	..
xviii	Bukit Abal Scheme •	50	50	32	..	..	..	132	..	..	..	132
xix	Sungei Danan Scheme †	..	50	10	..	..	..	60	..	..	..	60
xx	Ulu Sat (1st stage) †	..	..	70	50	..	..	120	..	..	..	120
xxi	Bukit Kwong Scheme †	..	..	..	..	50	50	100	..	..	..	100
	Malacca.											
xxii	Parit China Scheme †	10	..	..	..	..	..	10	..	..	..	10
xxiii	Sungei Bharu Ilir Scheme •	36	30	..	..	..	..	66	..	66	..	..
xxiv	Duyong (Pumping) •	38	..	..	..	..	..	38	..	..	..	38
xxv	Sungei Siput Scheme †	..	30	30	..	..	..	60	..	..	..	60
xxvi	Selandar Scheme †	..	..	..	60	..	..	60	..	..	..	60
xxvii	Telok Rimba (Pumping) †	..	..	..	..	40	30	70	..	..	..	70

• Federal Expenditure. † State or Settlement Expenditure.

APPENDIX O—(*cont.*)

DRAINAGE AND IRRIGATION PROGRAMME, 1950-1955—(*cont.*)

No.	Schemes Proposed.	Recurrent Expenditure ('000 dollars).							Notes and Comments.
		1950.	1951.	1952.	1953.	1954.	1955.	Rising to (maximum).	
		(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
	A.—IRRIGATION.								
	Johore.								
i	Balang Scheme •	5.5	5.5	5.5	5.5	5.5	5.5	5.5	
ii	Assam Bubok Scheme †	..	3	5	8	8	8	8	
iii	Sungei Ring Scheme •	..	4	4	4	4	4	4	
iv	Lenga Scheme, Muar †	..	..	..	..	2	4	4	
v	Pagoh Scheme •	..	..	3	3	3	3	3	
vi	Sawah Serakek Scheme •	..	.5	.5	.5	.5	.5	.5	
vii	Sawah Gatom Scheme †	..	1	1	1	1	1	1	
viii	Sawah Lenga, Segamat †	..	3	3	3	3	3	3	
ix	Ulu Benut Scheme †	..	..	..	2.5	3	3	3	
x	Ayer Tawar Scheme †	..	1.5	2	2	2	2	2	
xi	Kahang Scheme •	2	5	7	9	13	13	13	
xii	Padang Endau Scheme •	..	7	7	7	7	7	7	
	Kedah.								
xiii	Kubang Pasu Scheme •	..	50	100	150	210	250	300	
xiv	Kota Bukit Meriam Scheme •	5	12	12	12	12	12	12	
xv	Banda Bahru Scheme †	9	9	12	15	17	17	17	
xvi	Sinkir Someling Scheme †	..	..	..	5	12	19	19	
	Kelantan.								
xvii	Salor (Pumping) •	5	12	12	12	12	12	12	
xviii	Bukit Abal Scheme •	..	5	10	15	15	15	15	
xix	Sungei Danan Scheme †	..	..	1.5	2	2	2	2	
xx	Ulu Sat (1st stage) †	..	..	..	..	2	4	4	
xxi	Bukit Kwong Scheme †	..	..	..	..	..	2	5	
	Malacca.								
xxii	Parit China Scheme †	1	1	1	1	1	1	1	
xxiii	Sungei Bharu Ilir Scheme •	2.5	3	3	3	3	3	3	
xxiv	Duyong (Pumping) •	2.5	3.5	4	4	4	4	4	
xxv	Sungei Siput Scheme †	2	2	2	2	2	2	2	
xxvi	Selandar Scheme †	..	..	..	.5	1.5	1.5	1.5	
xxvii	Telok Rimba (Pumping) †	..	..	..	..	..	3	3	

• Federal Expenditure. † State or Settlement Expenditure.

APPENDIX O—(*cont.*)

DRAINAGE AND IRRIGATION PROGRAMME, 1950-1955—(*cont.*)

No.	Schemes Proposed.	Capital Expenditure ('000 dollars).										
		1950.	1951.	1952.	1953.	1954.	1955.	Total.	From C.D. & W.	From Loans.		From Federation Funds.
										1949.	Projected.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	Negri Sembilan.											
xxviii	Tanjong Ipoh Scheme •	20	..	..	..	..	..	20	..	..	..	20
xxix	Durian Gasing Scheme •	72	..	..	..	..	..	72	..	72	..	..
xxx	Sungei Raya Scheme †	34	26	..	..	..	..	60	..	..	..	60
xxxi	Sungei Dua Scheme †	..	50	50	..	..	..	100	..	..	..	100
xxxii	Sungei Jimah Scheme †	..	50	..	..	..	..	50	..	..	..	50
xxxiii	Sungei Pelangi Scheme †	..	..	..	53	..	..	53	..	..	..	53
xxxiv	Kendong Scheme †	..	..	25	..	..	..	25	..	..	..	25
xxxv	Ulu Jelebu Scheme †	..	..	..	50	..	..	50	..	..	..	50
xxxvi	Padang Biawas Scheme ‡	80	..	..	..	..	..	80	..	35	..	45
	Pahang.											
xxxvii	Paya Pinang Scheme •	..	8	..	..	..	..	8	..	8	..	..
xxxviii	Small Schemes •	5	15	33	..	..	..	53	..	53	..	..
	Penang and Province Wellesley.											
xxxix	Sungei Kulim Extension †	50	30	20	10	5	5	120	..	..	..	120
xl	Machang Buboh Scheme †	..	20	10	10	5	5	50	..	..	..	50
xli	Muda River Scheme •	..	..	..	..	300	1,000	1,300	..	..	1,300	..
xlii	Alma Scheme †	..	20	10	5	..	..	35	..	..	..	35
	Perak.											
xliii	Sungei Manik Scheme •	68	200	200	200	..	..	668	..	..	..	668
xliv	Changkat Jong Scheme •	75	100	75	..	..	..	250	..	..	..	250
xlv	Bukit Gantang Scheme •	30	..	..	..	..	..	30	..	30	..	..
xlvi	Trans Perak (1st stage) •	..	200	200	200	200	200	1,000	..	1,000	..	..
xlvii	Lenggong Scheme •	..	30	..	..	..	..	30	..	30	..	..
xlviii	Krian Improvements †	88	100	100	100	100	100	588	..	..	..	588
	Perlis.											
xlix	South Perlis Scheme •	320	200	200	137	..	..	857	..	857	..	..

• Federal Expenditure. † State or Settlement Expenditure. ‡ Federal or State/Settlement Expenditure.

APPENDIX O—(*cont.*)

DRAINAGE AND IRRIGATION PROGRAMME, 1950-1955—(*cont.*)

No.	Schemes Proposed.	Recurrent Expenditure ('000 dollars).							Notes and Comments.
		1950.	1951.	1952.	1953.	1954.	1955.	Rising to (maximum).	
		(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
	Negri Sembilan.								
xxviii	Tanjong Ipoh Scheme *	4	4	4	4	4	4	4	
xxix	Durian Gasing Scheme *	..	1	1	1	1	1	1	
xxx	Sungei Raya Scheme †	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
xxxi	Sungei Dua Scheme †	1	1.5	1.5	1.5	1.5	1.5	1.5	
xxxii	Sungei Jimah Scheme †	.5	1	1	1	1	1	1	
xxxiii	Sungei Pelangi Scheme †	..	..	..	.5	1	1	1	
xxxiv	Kendong Scheme †	..	..	.5	1	1	1	1	
xxxv	Ulu Jelebu Scheme †	..	..	..	.5	1	1	1	
xxxvi	Padang Biawas Scheme ‡	.5	1.5	1.5	1.5	1.5	1.5	1.5	
	Pahang.								
xxxvii	Paya Pinang Scheme *	..	..	1	1	1	1	1	
xxxviii	Small Schemes *	..	1	2.5	4	4	4	4	
	Penang and Province Wellesley.								
xxxix	Sungei Kulim Extension †	1	1	1	1	1	1	1	
xl	Machang Buboh Scheme †	..	..	..	2	2	2	2	
xli	Muda River Scheme *	..	..	..	..	..	10	100	
xlii	Alma Scheme †	..	..	2	2	2	2	2	
	Perak.								
xliii	Sungei Manik Scheme *	..	..	8	18	20	20	20	
xliv	Changkat Jong Scheme *	..	5	10	20	24	24	24	
xlv	Bukit Gantang Scheme *	..	1	1	1	1	1	1	
xlvi	Trans Perak (1st stage) *	..	..	10	25	35	50	80	
xlvii	Lenggong Scheme *	..	..	1.5	1.5	1.5	1.5	1.5	
xlviii	Krian Improvements †	..	..	..	..	..	..	..	
	Perlis.								
xlix	South Perlis Scheme *	..	10	15	20	30	48	54	

* Federal Expenditure. † State or Settlement Expenditure. ‡ Federal or State/Settlement Expenditure.

APPENDIX O—(*cont.*)

DRAINAGE AND IRRIGATION PROGRAMME, 1950-1955—(*cont.*)

No.	Schemes Proposed.	Capital Expenditure ('000 dollars).									
		1950.	1951.	1952.	1953.	1954.	1955.	Total.	From C.D. & W.	From Loans.		From Federation Funds.
										1949.	Projected.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	Selangor.											
l	Tanjong Karang Scheme •	500	173	..	..	..	..	673	..	673	..	..
li	Headworks—Bernam River •	..	600	700	700	..	..	2,000	..	..	2,000	..
lii	Tanjong Karang Extension (Stage I) •	..	..	..	..	500	700	1,200	..	..	1,200	..
	Trengganu.											
liii	Besut Scheme •	140	300	400	400	400	329	1,969	..	1,969	..	..
liv	Batu Rakit Scheme •	50	50	50	50	40	17	257	..	257	..	..
lv	Trengganu River (Pumping) •	150	120	100	15	..	..	385	..	385	..	..
lvi	Sungei Nerus Scheme •	..	100	100	200	200	150	750	..	750	..	..
lvii	Sungei Ibai Scheme †	5	10	..	..	..	..	15	..	..	..	15
lviii	Bukit Tumboh Scheme †	12	..	..	..	..	..	12	..	..	..	12
lix	Kampong Laut Scheme †	..	11	..	..	..	..	11	..	..	..	11
	B.—DRAINAGE.											
	Johore.											
lx	Sri Menanti Scheme ‡	108	40	40	..	..	..	188	..	149	..	39
lxi	Senggarang Scheme ‡	93	40	..	..	..	..	133	..	107	..	26
lxii	West Coast Scheme (Stage I) ‡	200	200	100	93	50	..	643	..	593	..	50
lxiii	West Coast Scheme (,, II) •	..	..	..	..	200	400	600	..	..	600	..
lxiv	West Coast Scheme (,, III) •	..	..	..	150	150	..	300	..	..	300	..
lxv	West Coast Scheme (,, IV) •	..	..	..	..	..	180	180	..	..	180	..
lxvi	Muar Scheme †	40	60	60	60	..	..	220	..	..	..	220
	Negri Sembilan.											
lxvii	Chuah Scheme †	..	..	..	..	70	61	131	..	..	..	131
	Perak.											
lxviii	Durian Sebatang Scheme •	60	..	..	..	..	..	60	..	60	..	..

• Federal Expenditure. † State or Settlement Expenditure. ‡ Federal or State/Settlement Expenditure.

APPENDIX O—(*cont.*)

DRAINAGE AND IRRIGATION PROGRAMME, 1950-1955—(*cont.*)

No.	Schemes Proposed.	Recurrent Expenditure ('000 dollars).							Notes and Comments.
		1950.	1951.	1952.	1953.	1954.	1955.	Rising to (maximum).	
		(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
	Selangor.								
i	Tanjong Karang Scheme •	120	130	140	140	140	140	140	
ii	Headworks—Bernam River •	..	..	2	3.5	5	5	5	
iii	Tanjong Karang Extension (Stage I) •	..	..	..	..	..	10	30	
	Trengganu.								
iiii	Besut Scheme •	..	15	30	55	88	100	100	
iiv	Batu Rakit Scheme •	..	2	4	7	9	12	12	
iv	Trengganu River (Pumping) •	..	..	25	32	32	32	32	
ivi	Sungei Nerus Scheme •	..	..	..	..	..	8	48	
ivii	Sungei Ibai Scheme †	..	..	..	..	..	..	..	
iviii	Bukit Tumboh Scheme †	..	.5	.5	.5	.5	.5	.5	
iix	Kampong Laut Scheme †	..	..	.5	.5	.5	.5	.5	
	B.—DRAINAGE.								
	Johore.								
ix	Sri Menanti Scheme ‡	12	16	36	40	40	40	40	
ixi	Senggarang Scheme ‡	13	17	40	40	40	40	40	
ixii	West Coast Scheme (Stage I) ‡	..	10	20	30	60	60	60	
ixiii	West Coast Scheme (,, II) •	..	..	..	..	..	10	60	
ixiv	West Coast Scheme (,, III) •	..	..	..	..	15	30	30	
ixv	West Coast Scheme (,, IV) •	..	..	..	..	..	..	7	
ixvi	Muar Scheme †	..	10	20	30	40	50	50	
	Negri Sembilan.								
ixvii	Chuah Scheme †	..	..	..	..	5	8	8	
	Perak.								
ixviii	Durian Sebatang Scheme •	3	6	9	9	9	9	9	

• Federal Expenditure. † State or Settlement Expenditure. ‡ Federal or State/Settlement Expenditure.

APPENDIX O—(*cont.*)

DRAINAGE AND IRRIGATION PROGRAMME, 1950-1955—(*cont.*)

No.	Schemes Proposed.	Capital Expenditure ('000 dollars).										
		1950.	1951.	1952.	1953.	1954.	1955.	Total.	From C.D. & W.	From Loans.		From Federation Funds.
										1949.	Projected.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	Penang and Province Wellesley.											
lxix	Juru Scheme •	29	11	..	..	..	..	40	..	..	..	40
lxx	Pulau Betong Scheme •	36	30	..	..	..	..	66	..	..	..	66
lxxi	Sungei Udang Scheme •	15	..	..	..	..	..	15	..	..	..	15
lxxii	Pulau Beong Extension •	..	10	25	15	5	5	60	..	..	..	60
	Selangor.											
lxxiii	Klang—Kapar Scheme, Klang †	..	100	200	200	..	..	500	..	..	500	..
lxxiv	New Works—Kuala Selangor †	83	..	..	..	..	..	83	..	83	..	..
	C.—RIVER CONSERVANCY.											
	Kelantan.											
lxxv	Ulu Semerak tributaries •	40	40	40	20	20	20	180	..	..	..	180
lxxvi	Sungei Semerak dredging •	..	25	20	20	..	..	65	..	..	..	65
	Malacca											
lxxvii	Dredging Sungei Kesang •	25	50	25	..	..	..	100	..	..	..	100
lxxviii	Sri Malaka River Scheme •	..	50	30	..	..	..	80	..	..	..	80
	Perak.											
lxxix	Dredging of rivers †	125	125	125	375	375	375	1,500	..	..	1,500	..
lxxx	Purchase of dredge †	..	..	1,500	..	..	..	1,500	..	..	1,500	..

• State or Settlement Expenditure. † Federal Expenditure.

DRAINAGE AND IRRIGATION PROGRAMME, 1950-1955—(*cont.*)

No.	Schemes Proposed.	Recurrent Expenditure ('000 dollars).							Notes and Comments.
		1950.	1951.	1952.	1953.	1954.	1955.	Rising to (maximum).	
		(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
	Penang and Province Wellesley.								
lxix	Juru Scheme *	..	1	1.5	1.5	1.5	1.5	1.5	
lxx	Pulau Betong Scheme *	..	3	3	3	3	3	3	
lxxi	Sungei Udang Scheme *	..	..	..	..	..	..	..	
lxxii	Pulau Beong Extension *	..	1	1	1	1	1	1	
	Selangor.								
lxxiii	Klang—Kapar Scheme, Klang †	..	..	2	5	8	8	8	
lxxiv	New Works—Kuala Selangor †	8	8	8	8	8	8	8	
	C.—RIVER CONSERVANCY.								
	Kelantan.								
lxxv	Ulu Semerak tributaries *	..	..	..	..	..	..	..	
lxxvi	Sungei Semerak dredging *	..	..	..	..	..	..	..	
	Malacca.								
lxxvii	Dredging Sungei Kesang *	..	..	..	..	..	..	..	
lxxviii	Sri Malaka River Scheme *	..	..	..	..	..	..	..	
	Perak.								
lxxix	Dredging of rivers †	..	..	..	..	..	..	..	
lxxx	Purchase of dredge †	..	..	..	..	..	..	..	

* State or Settlement Expenditure. † Federal Expenditure.

APPENDIX O—(*cont.*)

DRAINAGE AND IRRIGATION PROGRAMME, 1950-1955—(*cont.*)

No.	Schemes Proposed.	Capital Expenditure ('000 dollars).										
		1950.	1951.	1952.	1953.	1954.	1955.	Total.	From C.D. & W.	From Loans.		From Federation Funds.
										1949.	Projected.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	Penang and Province Wellesley.											
lxxxi	Dredging Sungei Kulim *	..	20	20	10	..	..	50	..	..	..	50
lxxxii	Dredging Sungei Juntong *	..	..	..	20	20	20	60	..	..	..	60
	D.—SURVEYS, ETC.											
lxxxiii	Surveys of schemes †	220	220	220	220	220	220	1,320	..	..	..	1,320
	E.—RESEARCH.											
lxxxiv	Hydraulic Laboratory ‡	150	50	..	..	..	..	200	200	..	..	..
lxxxv	Institutional Quarters ‡	..	100	100	..	..	..	200	..	..	..	200
	Total ..	4,862	5,204	6,513	4,429	3,590	4,237	28,835	200	12,649	9,080	6,906

* State or Settlement Expenditure. † Federal or State/Settlement Expenditure. ‡ Federal Expenditure.

APPENDIX O—(*cont.*)

DRAINAGE AND IRRIGATION PROGRAMME, 1950-1955—(*cont.*)

No.	Schemes Proposed.	RECURRENT EXPENDITURE ('000 DOLLARS).							Notes and Comments.
		1950.	1951.	1952.	1953.	1954.	1955.	Rising to (maximum).	
		(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
	Penang and Province Wellesley.								
lxxxi	Dredging Sungei Kulim *	..	..	..	..	..	..	..	
lxxxii	Dredging Sungei Junjong *	..	..	..	..	..	..	..	
	D.—SURVEYS, ETC.								
lxxxiii	Surveys of schemes †	..	..	..	..	..	..	..	
	E.—RESEARCH.								
lxxxiv	Hydraulic Laboratory ‡	..	12	12	22	22	22	22	C.D.W. Scheme, R. 349
lxxxv	Institutional Quarters ‡	..	..	..	..	..	..	..	
	Total	200	389	614	804	1,009	1,179	1,475	

* State or Settlement Expenditure. † Federal or State/Settlement Expenditure. ‡ Federal Expenditure.

APPENDIX P.

FILM UNIT PROGRAMME, 1950-1955.

(All figures are subject to revision.)

No.	Schemes Proposed. (All Federal Expenditure.)	Capital Expenditure ('000 dollars).										
		1950.	1951.	1952.	1953.	1954.	1955.	Total.	From C.D. & W.	From Loans. 1949.	From Loans. Projected.	From Federation Funds.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	A.—BUILDING.											
i	Production Blocks, etc	..	109	170	16	..	..	295	295	..	..	..
	B.—EQUIPMENT.											
ii	New equipment	..	136	..	..	..	..	136	136	..	..	..
iii	Replacement equipment	..	..	..	24	..	..	24	..	..	..	24
	C.—TRAINING.											
iv	Passages and subsistence	..	6	..	6	..	..	12	..	..	..	12
	Total	..	251	170	46	..	..	467	431	..	..	36

No.	Schemes Proposed. (All Federal Expenditure.)	Recurrent Expenditure ('000 dollars).							Notes and Comments.
		1950.	1951.	1952.	1953.	1954.	1955.	Rising to (maximum).	
		(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
	A.—BUILDING.								
i	Production Blocks, etc.	..	..	12	25	29	29	29	C.D.W. allocation not yet approved
	B.—EQUIPMENT.								
ii	New equipment	..	7	7	7	7	7	7	C.D.W. allocation not yet applied for
iii	Replacement equipment	..	..	..	..	..	..	..	
	C.—TRAINING.								
iv	Passages and subsistence	..	..	..	..	..	..	..	
	Total	..	7	19	32	36	36	36	

APPENDIX Q.

HOUSING PROGRAMME, 1950-1955.

(All figures are subject to revision.)

No.	Schemes Proposed. (All Federal Expenditure.)	CAPITAL EXPENDITURE ('000 DOLLARS).										
		1950.	1951.	1952.	1953.	1954.	1955.	Total.	From C.D. & W.	From Loans.		From Federation Funds.
										1949.	Projected.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1	Contributions to Housing Trust	..	3,000	..	..	..	..	3,000	..	3,000	..	..
	Total ..	..	3,000	..	..	..	..	3,000	..	3,000	..	..

No.	Schemes Proposed. (All Federal Expenditure.)	RECURRENT EXPENDITURE ('000 DOLLARS).							Notes and Comments.
		1950.	1951.	1952.	1953.	1954.	1955.	Rising to (maximum).	
		(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
1	Contributions to Housing Trust	..	..	..	..	..	..	..	
	Total ..	..	..	..	..	..	..	..	

APPENDIX R.

LAND SETTLEMENT PROGRAMME, 1950-1955.

(All figures are subject to revision.)

No.	Schemes Proposed. (All State and Settlement Expenditure.)	Capital Expenditure ('000 dollars).										
		1950.	1951.	1952.	1953.	1954.	1955.	Total.	From C.D. & W.	From Loans.		From Federation Funds.
										1949.	Projected.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1	Settlement Schemes	485	485	485	485	485	485	2,910	..	..	..	2,910
	Total ..	485	485	485	485	485	485	2,910	..	..	..	2,910

No.	Schemes Proposed. (All State and Settlement Expenditure.)	Recurrent Expenditure ('000 dollars).							Notes and Comments.
		1950.	1951.	1952.	1953.	1954.	1955.	Rising to (maximum).	
		(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
1	Settlement Schemes	..	..	..	..	..	..	..	
	Total ..	..	..	..	..	..	..	..	

APPENDIX S.

MARINE PROGRAMME, 1950-1955.

(All figures are subject to revision.)

No.	Schemes Proposed. (All Federal Expenditure.)	Capital Expenditure ('000 dollars).										From Federation Funds.
		1950.	1951.	1952.	1953.	1954.	1955.	Total.	From C.D. & W.	From Loans.		
										1949.	Projected.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	A.—ELECTRIFICATION OF LIGHTS.											
i-vi	Conversion of six lights	..	100	100	100	..	..	300	..		300	..
	B.—DREDGING.											
vii	Cost of dredge	..	..	..	..	1,000	..	1,000	..	..	1,000	..
	Total ..	..	100	100	100	1,000	..	1,300	..	..	1,300	..

No.	Schemes Proposed. (All Federal Expenditure.)	Recurrent Expenditure ('000 dollars).							Notes and Comments.
		1950.	1951.	1952.	1953.	1954.	1955.	Rising to (maximum).	
		(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
	A.—ELECTRIFICATION OF LIGHTS.								
i-vi	Conversion of six lights	..	..	..	..	..	..	..	
	B.—DREDGING.								
vii	Cost of dredge	..	..	..	..	..	..	..	
	Total ..	..	..	..	..	..	..	..	

APPENDIX T.

METEOROLOGICAL PROGRAMME, 1950-1955.

(All figures are subject to revision.)

No.	Schemes Proposed. (All Federal Expenditure.)	Capital Expenditure ('000 dollars).										
		1950.	1951.	1952.	1953.	1954.	1955.	Total.	From C.D. & W.	From Loans.		From Federation Funds.
										1949.	Projected.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
i	Forecast office	..	164	..	..	..	..	164	..	..	..	164
ii	Observing stations	..	..	105	..	..	28	133	..	..	..	133
iii	Radar wind observations	..	..	..	160	60	..	220	220	..	..	..
	Total ..	..	164	105	160	60	28	517	220	..	..	297

No.	Schemes Proposed. (All Federal Expenditure.)	Recurrent Expenditure ('000 dollars).							Notes and Comments.
		1950.	1951.	1952.	1953.	1954.	1955.	Rising to (maximum).	
		(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
i	Forecast office	..	26	36	37	38	39	45	
ii	Observing stations	..	..	6	6	6	8	10	
iii	Radar wind observations	..	..	..	90	90	90	90	C.D.W. allocation not yet applied for
	Total ..	..	26	42	133	134	137	145	

APPENDIX U.

POSTAL PROGRAMME, 1950-1955.

(All figures are subject to revision.)

No.	Schemes Proposed. (All Federal Expenditure.)	Capital Expenditure ('000 dollars).										
		1950.	1951.	1952.	1953.	1954.	1955.	Total.	From C.D. & W.	From Loans.		From Federation Funds.
										1949.	Projected.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	A.—BUILDINGS, ETC.											
i-x	Ten new post offices	..	90	101	49	90	..	330	..	..	..	330
xi	Quarters	..	..	..	..	..	40	40	..	..	..	40
xii	New General Post Office	..	..	..	1,000	1,000	..	2,000	..	..	2,000	..
	B.—TRANSPORT.											
xiii	Vans, launches, etc.	..	6	156	35	18	12	227	..	..	..	227
	Total ..	..	96	257	1,084	1,108	52	2,597	..	..	2,000	597

No.	Schemes Proposed. (All Federal Expenditure.)	Recurrent Expenditure ('000 dollars).							Notes and Comments.
		1950.	1951.	1952.	1953.	1954.	1955.	Rising to (maximum).	
		(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
	A.—BUILDINGS, ETC.								
i-x	Ten new post offices	..	12	24	28	40	40	40	
xi	Quarters	..	..	..	..	..	1	1	
xii	New General Post Office	..	..	..	..	..	..	..	
	B.—TRANSPORT.								
xiii	Vans, launches, etc.	..	3	22	23	23	23	23	
	Total ..	..	15	46	51	63,	64	64	

APPENDIX V.

ROAD TRANSPORT PROGRAMME, 1950-1955.

(All figures are subject to revision.)

No.	Schemes Proposed. (All Federal Expenditure.)	Capital Expenditure ('000 dollars).										
		1950.	1951.	1952.	1953.	1954.	1955.	Total.	From C.D. & W.	From Loans. 1949.	From Loans. Projected.	From Federation Funds.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	A.—IMPROVEMENTS.											
i	Johore Headquarters	..	..	..	..	146	..	146	..	..	..	146
ii	Negri Sembilan Headquarters	..	..	..	..	..	70	70	..	..	..	70
iii	Kelantan and Trengganu Headquarters	..	97	..	..	..	..	97	..	..	..	97
iv	Perak Headquarters	..	..	7	..	..	..	7	..	..	..	7
v	Malacca Headquarters	..	..	..	5	..	..	5	..	..	..	5
	B.—NEW FACILITIES.											
vi	Certification system	..	..	..	40	..	..	40	..	..	..	40
	Total	..	97	7	45	146	70	365	..	..	..	365

No.	Schemes Proposed. (All Federal Expenditure.)	Recurrent Expenditure ('000 dollars).							Notes and Comments.
		1950.	1951.	1952.	1953.	1954.	1955.	Rising to (maximum).	
		(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
	A.—IMPROVEMENTS.								
i	Johore Headquarters	..	..	..	..	..	..	..	
ii	Negri Sembilan Headquarters	..	..	..	..	..	..	..	
iii	Kelantan and Trengganu Headquarters	..	..	..	..	..	..	..	
iv	Perak Headquarters	..	..	..	..	..	..	..	
v	Malacca Headquarters	..	..	..	..	..	..	..	
	B.—NEW FACILITIES.								
vi	Certification system	..	..	..	21	22	22	22	
	Total	..	..	..	21	22	22	22	

APPENDIX W.

TELECOMMUNICATIONS PROGRAMME, 1950-1955.

(All figures are subject to revision.)

No.	Schemes Proposed. (All Federal Expenditure.)	Capital Expenditure ('000 dollars).										
		1950.	1951.	1952.	1953.	1954.	1955.	Total.	From C.D. & W.	From Loans.		From Federation Funds.
										1949.	Projected.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	A.—INTERNAL TELEPHONE SERVICES.											
	Exchange Development.											
i	135 Rural Auto Exchanges	102	397	356	234	208	208	1,505	..	..	1,505	..
ii	5 Auto Exchanges	..	214	72	72	..	..	358	..	..	358	..
iii	Kuala Lumpur Exchange	841	912	..	..	..	..	1,753	..	1,753	..	..
iv	Penang Exchange	1	900	174	..	..	..	1,075	..	..	..	1,075
v	Ipoh Exchange	Token	..	590	50	..	..	640	..	..	..	640
vi	8 Small Manual Exchanges	7	63	15	..	..	..	85	..	..	85	..
vii	20 Manual Exchanges	10	145	132	67	80	80	514	..	..	514	..
viii	6 Manual Exchanges	70	132	140	98	..	..	440	..	..	440	..
	Sites and Buildings.											
ix	36 Standard Rax Buildings	..	112	40	56	40	40	288	..	..	288	..
x	2 Group Centre Buildings	..	66	..	..	..	..	66	..	..	66	..
xi	Ipoh Building	..	500	..	..	..	..	500	..	..	500	..
xii	Penang Building	580	..	..	..	..	..	580	..	..	580	..
xiii	Training School	..	240	..	..	..	..	240	..	..	..	240
	Trunk and Junction Plant Development.											
xiv	V.H.F. Project SE-KL-PG—50 Inter Zone Circuits	Token	300	1,500	180	20	..	2,000	..	..	2,000	..
xv	V.H.F. Project, East Coast	,,	300	..	..	..	..	300	..	..	300	..
xvi	Carrier Systems	,,	383	347	372	340	267	1,709	..	..	1,709	..
xvii	90 Zone Group Circuits Carrier and Physical	70	685	659	716	665	559	3,354	..	..	3,354	..
xviii	30 Group—Group Circuits Carrier and Physical	94	271	314	269	231	142	1,321	..	..	1,321	..
xix	350 Group—Minor-Dependant Circuits Physical	250	994	1,025	920	1,099	1,059	5,347	..	..	5,347	..

APPENDIX W—(*cont.*)

TELECOMMUNICATIONS PROGRAMME, 1950-1955—(*cont.*)

No.	Schemes Proposed. (All Federal Expenditure.)	Recurrent Expenditure ('000 dollars).							Notes and Comments.
		1950.	1951.	1952.	1953.	1954.	1955.	Rising to (maximum).	
		(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
	A.—INTERNAL TELEPHONE SERVICES.								
	Exchange Development.								
i	135 Rural Auto Exchanges								
ii	5 Auto Exchanges								
iii	Kuala Lumpur Exchange								
iv	Penang Exchange	98	144	183	206	229	248	248	
v	Ipoh Exchange								
vi	3 Small Manual Exchanges								
vii	20 Manual Exchanges								
viii	6 Manual Exchanges								
	Sites and Buildings.								
ix	36 Standard Rax Buildings								
x	2 Group Centre Buildings								
xi	Ipoh Building	8	27	38	45	50	54	54	
xii	Penang Building								
xiii	Training School								
	Trunk and Junction Plant Development.								
xiv	V.H.F. Project, SE-KL-PG—30 Inter Zone Circuits								
xv	V.H.F. Project, East Coast								
xvi	Carrier Systems	312	372	444	522	589	656	656	
xvii	90 Zone Group Circuits Carrier and Physical								
xviii	30 Group—Group Circuits Carrier and Physical								
xix	350 Group—Minor-Dependant Circuits Physical								

APPENDIX W—(*cont.*)

TELECOMMUNICATIONS PROGRAMME, 1950-1955—(*cont.*)

No.	Schemes Proposed. (All Federal Expenditure.)	Capital Expenditure ('000 dollars).									
		1950.	1951.	1952.	1953.	1954.	1955.	Total.	From C.D. & W.	From Loans.	From Federation Funds.
										1949. / Projected.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11) / (12)	(13)
	SUBSCRIBERS PLANT DEVELOPMNT.										
xx	Kuala Lumpur underground cables scheme	1,047	..	..	..	..	..	1,047	..	905 / 142	..
xxi	Penang underground cables scheme	230	570	..	..	..	..	800	..	.. / 800	..
xxii	Ipoh underground cables scheme	Token	250	350	..	..	..	600	..	.. / 600	..
xxiii	Minor underground cables schemes	376	310	320	317	310	300	1,933	..	.. / 1,933	..
xxiv	Overhead lines	372	780	325	165	158	150	1,950	..	.. / 1,950	..
xxv	Subscribers Installations	192	302	90	66	60	60	770	..	.. / 770	..
	B.—TELEGRAPH SERVICE.										
xxvi	Voice Frequency Telegraph Systems	Token	40	80	30	10	10	170	..	.. / 170	..
xxvii	Teleprinter Equipment	2	40	40	..	..	..	82	..	.. / 82	..
	C.—TRAINING.										
xxviii	Scholarships	7	10	10	10	10	10	57	..	.. / ..	57
xxix	Equipment	..	60	30	15	10	5	120	..	.. / ..	120
	Total	4,251	8,976	6,609	3,637	3,241	2,890	29,604	..	2,658 / 24,814	2,132

APPENDIX W—(*cont.*)

TELECOMMUNICATIONS PROGRAMME, 1950-1955—(*cont.*)

No.	Schemes Proposed. (All Federal Expenditure.)	Recurrent Expenditure ('000 dollars).							Notes and Comments.
		1950.	1951.	1952.	1953.	1954.	1955.	Rising to (maximum).	
		(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
	SUBSCRIBERS PLANT DEVELOPMENT.								
xx	Kuala Lumpur underground cables scheme	98	164	203	226	429	268	268	
xxi	Penang underground cables scheme								
xxii	Ipoh underground cables scheme								
xxiii	Minor underground cables schemes								
xxiv	Overhead lines								
xxv	Subscribers Installations								
	B.—TELEGRAPH SERVICE.								
xxvi	Voice Frequency Telegraph Systems	7	11	14	16	18	19	19	
xxvii	Teleprinter Equipment								
	C.—TRAINING.								
xxviii	Scholarships	..	..	..	..	..	..	..	
xxix	Equipment	..	..	..	..	..	..	..	
	Total ..	523	718	882	1,015	1,135	1,245	1,245	

Appendix X.

PUBLIC WORKS PROGRAMME, 1950-1955.

(All figures are subject to revision.)

No.	Schemes Proposed.	Capital Expenditure ('000 dollars).										
		1950.	1951.	1952.	1953.	1954.	1955.	Total.	From C.D. & W.	From Loans.		From Federation Funds.
										1949.	Projected.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	A.—ROADS.											
	Johore.											
i	Improvements—Route I •	..	333	333	333	333	333	1,665	..	..	1,665	..
ii	New Roads •	..	340	340	340	340	340	1,700	..	..	1,700	..
	Kedah.											
iii	Langar—Pendang •	..	300	300	337	..	..	937	..	..	937	..
iv	Pendang—Junun •	..	..	..	..	200	120	320	..	..	320	..
	Kelantan.											
v	Tanah Merah—Jeli •	250	..	..	..	..	..	250	..	..	250	..
vi	Kota Bahru—Bachok •	..	200	200	200	..	..	600	..	..	600	..
vii	Chabang Empat—Meranti •	..	..	..	..	270	..	270	..	..	270	..
viii	Chabang Empat—Kuala Jambu •	..	..	..	..	..	191	191	..	..	191	..
ix	Kota Bahru—Kuala Krai Improvement •	..	..	..	..	..	175	175	..	..	175	..
x	Kota Bahru—Bukit Ujong •	..	..	50	75	75	..	200	..	..	200	..
	Negri Sembilan.											
xi	Kota—Lubok China •	..	200	200	120	..	..	520	..	..	520	..
xii	Sri Menanti—Senaling •	..	..	..	..	100	150	250	..	..	250	..
	Pahang.											
xiii	Temerloh—Maran •	1,000	1,000	1,000	908	..	..	3,908	3,908	..	..	..
xiv	Other Roads •	..	..	..	500	500	500	1,500	..	..	1,500	..
	Penang and Province Wellesley.											
xv	Improvements •	..	50	50	50	50	58	258	..	..	258	..
xvi	Telok Bahang—Telok Awah •	..	..	..	43	..	..	43	..	..	43	..
	Perak.											
xvii	Grik—Kroh •	250	250	250	250	..	..	1,000	..	..	1,000	..
xviii	Changkat Jong Irrigation •	..	400	..	..	..	..	400	..	..	400	..
xix	Parit Bota—Tronoh •	..	..	250	300	..	..	550	..	..	550	..
xx	Sungei Manik Irrigation •	..	100	200	300	..	..	600	..	..	600	..
xxi	Pengkalan Bahru—Ayer Tawar •	..	..	..	..	400	400	800	..	..	800	..

• Federal Expenditure.

APPENDIX X—(*cont.*)

PUBLIC WORKS PROGRAMME, 1950-1955—(*cont.*)

No.	Schemes Proposed.	Recurrent Expenditure ('000 dollars).							Notes and Comments.
		1950.	1951.	1952.	1953.	1954.	1955.	Rising to (maximum).	
		(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
	A.—ROADS.								
	Johore.								
i	Improvements—Route I *	..	..	..	..	..	..	..	
ii	New Roads *	..	..	14	28	42	56	56	
	Kedah.								
iii	Langar—Pendang *	..	..	10	20	30	40	40	
iv	Pendang—Junun *	..	..	..	..	..	15	21	
	Kelantan.								
v	Tanah Merah—Jeli *	..	66	66	66	66	66	66	
vi	Kota Bahru—Bachok *	..	..	10	15	30	30	30	
vii	Chabang Empat—Meranti *	..	..	..	..	..	11	11	
viii	Chabang Empat—Kuala Jambu *	..	..	..	..	..	..	35	
ix	Kota Bahru—Kuala Krai Improvement *	..	..	..	..	..	..	..	
x	Kota Bahru—Bukit Ujong *	..	..	..	..	..	..	..	
	Negri Sembilan.								
xi	Kota—Lubok China *	..	..	10	20	30	30	30	
xii	Sri Menanti—Senaling *	..	..	..	..	..	10	30	
	Pahang.								
xiii	Temerloh—Maran *	..	21	42	63	95	95	95	
xiv	Other Roads *	..	..	..	..	20	40	60	
	Penang and Province Wellesley.								
xv	Improvements *	..	..	..	..	..	..	..	
xvi	Telok Bahang—Telok Awah *	..	..	..	..	3	3	3	
	Perak.								
xvii	Grik—Kroh *	..	10	20	30	40	40	40	
xviii	Changkat Jong Irrigation *	..	..	25	25	25	25	25	
xix	Parit Bota—Tronoh *	..	..	..	20	42	42	42	
xx	Sungei Manik Irrigation *	..	..	10	20	30	38	38	
xxi	Pengkalan Bahru—Ayer Tawar *	..	..	..	..	..	25	57	

* Federal Expenditure.

PUBLIC WORKS PROGRAMME, 1950-1955—(*cont.*)

No.	Schemes Proposed.	Capital Expenditure ('000 dollars).										
		1950.	1951.	1952.	1953.	1954.	1955.	Total.	From C.D. & W.	From Loans. 1949.	From Loans. Projected.	From Federation Funds.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	Perlis.											
xxii	Kaki Bukit—Padang Besar *	300	..	..	..	..	..	300	..	..	300	..
	Selangor.											
xxiii	Tanjong Karang—Sabak Bernam *	..	1,000	1,000	1,000	500	..	3,500	..	..	3,500	..
	Trengganu.											
xxiv	Kemasek—Ibok Improvement *	..	150	150	..	..	..	300	..	..	300	..
xxv	Jerangan Road Improvement *	..	..	180	180	..	..	360	..	..	360	..
xxvi	East Coast Road Improvement *	20	250	70	220	400	400	1,360	..	..	1,360	..
	B.—BRIDGES.											
	Johore.											
xxvii	Causeway, 50 feet *	..	50	..	..	..	..	50	..	..	50	..
xxviii	6/15 Senai, 40 feet *	..	30	..	..	..	..	30	..	..	30	..
xxix	1/37 Route I, 60 feet *	..	80	..	..	..	..	80	..	..	80	..
xxx	1/53 Pontian, 140 feet *	..	75	..	..	..	..	75	..	..	75	..
xxxi	2/70 A.H.—Mersing, 80 feet *	..	50	..	..	..	..	50	..	..	50	..
xxxii	4/0 Kota Tinggi Road, 47 feet *	..	60	..	..	..	..	60	..	..	60	..
xxxiii	1/61 Route I, 80 feet *	..	..	50	..	..	..	50	..	..	50	..
xxxiv	1/77 Bailey, 40 feet *	..	..	28	..	..	..	28	..	..	28	..
xxxv	2/30 Pontian, 60 feet *	..	..	50	..	..	..	50	..	..	50	..
xxxvi	2/98 A.H.—Mersing, 240 feet *	..	..	200	..	..	..	200	..	..	200	..
xxxvii	1/14 Kota Tinggi Road, 60 feet *	..	..	30	..	..	..	30	..	..	30	..
xxxviii	1/46 Route I, 40 feet *	..	..	..	28	..	..	28	..	..	28	..
xxxix	1/78 Bailey, 100 feet *	..	..	..	60	..	..	60	..	..	60	..
xl	4/116 Segamat, 200 feet *	..	..	..	100	..	..	100	..	..	100	..
xli	1/40 Pontian, 80 feet *	..	..	..	55	..	..	55	..	..	55	..
xlii	Kota Tinggi, 275 feet *	..	..	..	248	..	..	248	..	..	248	..
xliii	4/47 Route I, 60 feet *	..	..	..	..	60	..	60	..	..	60	..

* Federal Expenditure.

APPENDIX X—(*cont.*)

PUBLIC WORKS PROGRAMME, 1950-1955—(*cont.*)

No.	Schemes Proposed.	Recurrent Expenditure ('000 dollars).							Notes and Comments.
		1950.	1951.	1952.	1953.	1954.	1955.	Rising to (maximum).	
		(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
	Perlis.								
xxii	Kaki Bukit—Padang Besar *	..	20	20	20	20	20	20	
	Selangor.								
xxiii	Tanjong Karang—Sabak Bernam *	..	..	20	40	60	80	80	
	Trengganu.								
xxiv	Kemasek—Ibok Improvement *	..	..	..	..	..	..	..	
xxv	Jerangan Road Improvement *	..	..	..	..	..	..	..	
xxvi	East Coast Road Improvement *	..	..	..	..	..	..	..	
	B.—BRIDGES.								
	Johore.								
xxvii	Causeway, 50 feet *	..	..	..	..	..	..	..	
xxviii	5/15 Senai, 40 feet *	..	..	..	..	..	..	..	
xxix	1/37 Route 1, 90 feet *	..	..	..	..	..	..	..	
xxx	1/38 Pontian, 140 feet *	..	..	..	..	..	..	..	
xxxi	3/70 A.H.—Mersing, 80 feet *	..	..	..	..	..	..	..	
xxxii	4/6 Kota Tinggi Road, 47 feet *	..	..	..	..	..	..	..	
xxxiii	1/61 Route 1, 80 feet *	..	..	..	..	..	..	..	
xxxiv	1/77 Bailey, 40 feet *	..	..	..	..	..	..	..	
xxxv	2/39 Pontian, 60 feet *	..	..	..	..	..	..	..	
xxxvi	2/98 A.H.—Mersing, 240 feet *	..	..	..	..	..	..	..	
xxxvii	1/14 Kota Tinggi Road, 60 feet *	..	..	..	..	..	..	..	
xxxviii	1/46 Route 1, 40 feet *	..	..	..	..	..	..	..	
xxxix	1/75 Bailey, 100 feet *	..	..	..	..	..	..	..	
xl	4/116 Segamat, 200 feet *	..	..	..	..	..	..	..	
xli	1/49 Pontian, 80 feet *	..	..	..	..	..	..	..	
xlii	Kota Tinggi, 275 feet *	..	..	..	..	..	..	..	
xliii	4/47 Route 1, 60 feet *	..	..	..	..	..	..	..	

* Federal Expenditure.

PUBLIC WORKS PROGRAMME, 1950-1955—(*cont.*)

No.	Schemes Proposed.	Capital Expenditure ('000 dollars).										
		1950.	1951.	1952.	1953.	1954.	1955.	Total.	From C.D. & W.	From Loans.		From Federation Funds.
										1949.	Projected.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	Johore—(*cont.*)											
xliv	4/87 Bailey, 100 feet *	..	..	..	..	60	..	60	..	..	60	..
xlv	1/97 Bailey, 60 feet *	..	..	..	..	39	..	39	..	..	39	..
xlvi	1/124 R. Kasap, 142 feet *	..	..	..	..	43	..	43	..	..	43	..
xlvii	1/70 Pontian, 100 feet *	..	..	..	..	70	..	70	..	..	70	..
xlviii	1/74 Route 1, 60 feet *	..	..	..	..	..	50	50	..	..	50	..
xlix	5/96 Route 1, 100 feet *	..	..	..	..	..	60	60	..	..	60	..
l	2/115 Route 1, 40 feet *	..	..	..	..	..	30	30	..	..	30	..
li	2/135 Gemas, 90 feet *	..	..	..	..	..	36	36	..	..	36	..
lii	5/83 Jamalunang, 135 feet *	..	..	..	..	..	150	150	..	..	150	..
liii	Replace Temporary bridges, 1,930 feet *	..	270	270	270	270	272	1,352	..	..	1,352	..
	Kedah—Perlis.											
liv	Alor Star, 240 feet *	..	250	..	..	..	..	250	..	..	250	..
lv	3/8 Kampong Betas, 240 feet *	..	..	170	..	..	..	170	..	..	170	..
lvi	7/1 Arau, 52 feet *	..	..	..	50	..	..	50	..	..	50	..
lvii	Kangar, 60 feet *	..	..	..	60	..	..	60	..	..	60	..
lviii	29/1 Bedong, 100 feet *	..	..	..	..	85	..	85	..	..	85	..
lix	2/11 Alor Star, 110 feet *	..	..	..	..	..	75	75	..	..	75	..
	Malacca.											
lx	Malacca—Muar (2), 70 feet *	..	..	..	..	23	..	23	..	..	23	..
lxi	Malacca—Muar (3), 50 feet *	..	..	..	..	..	38	38	..	..	38	..
	Negri Sembilan.											
lxii	2/1 Rahang, 135 feet *	..	105	..	..	..	..	105	..	..	105	..
lxiii	1/1 Setul, 45 feet *	..	53	..	..	..	..	53	..	..	53	..
lxiv	26/3 Pahang—Kuala Pilah, 150 feet *	..	..	150	..	..	..	150	..	..	150	..
lxv	2/9 Kuala Pilah, 140 feet *	..	..	73	..	..	..	73	..	..	73	..
lxvi	3/1 Port Dickson, 85 feet *	..	..	..	60	..	..	60	..	..	60	..
lxvii	56/5 Manchis, 40 feet *	..	..	..	28	..	..	28	..	..	28	..

* Federal Expenditure.

PUBLIC WORKS PROGRAMME, 1950-1955—(*cont.*)

No.	Schemes Proposed.	Recurrent Expenditure ('000 dollars).							Notes and Comments.
		1950.	1951.	1952.	1953.	1954.	1955.	Rising to (maximum).	
		(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
	Johore—(*cont.*)								
xliv	4/87 Bailey, 100 feet •	..	..	..	..	..	..	..	
xlv	1/97 Bailey, 60 feet •	..	..	..	..	..	..	..	
xlvi	1/124 B. Kasap, 142 feet •	..	..	..	..	..	..	..	
xlvii	1/70 Pontian, 100 feet •	..	..	..	..	..	..	..	
xlviii	1/74 Route I, 60 feet •	..	..	..	..	..	..	..	
xlix	5/96 Route I, 100 feet •	..	..	..	..	..	..	..	
l	2/115 Route I, 40 feet •	..	..	..	..	..	..	..	
li	2/135 Gemas, 90 feet •	..	..	..	..	..	..	..	
lii	5/83 Jamaluang, 135 feet •	..	..	..	..	..	..	..	
liii	Replace Temporary Bridges, 1,930 feet •	..	..	..	..	..	..	..	
	Kedah—Perlis.								
liv	Alor Star, 240 feet •	..	..	..	..	..	..	..	
lv	3/8 Kampong Betas, 240 feet •	..	..	..	..	..	..	..	
lvi	7/1 Arau, 52 feet •	..	..	..	..	..	..	..	
lvii	Kangar, 60 feet •	..	..	..	..	..	..	..	
lviii	29½ Bedong, 100 feet •	..	..	..	..	..	..	..	
lix	2/11 Alor Star, 110 feet •	..	..	..	..	..	..	..	
	Malacca.								
lx	Malacca—Muar (2), 70 feet •	..	..	..	..	..	..	..	
lxi	Malacca—Muar (3), 50 feet •	..	..	..	..	..	..	..	
	Negri Sembilan.								
lxii	2/1 Rahang, 135 feet •	..	..	..	..	..	..	..	
lxiii	1/1 Setul, 45 feet •	..	..	..	..	..	..	..	
lxiv	26/3 Pahang—Kuala Pilah, 150 feet •	..	..	..	..	..	..	..	
lxv	2/9 Kuala Pilah, 140 feet •	..	..	..	..	..	..	..	
lxvi	3/1 Port Dickson, 85 feet •	..	..	..	..	..	..	..	
lxvii	56/5 Manchis, 40 feet •	..	..	..	..	..	..	..	

• Federal Expenditure.

PUBLIC WORKS PROGRAMME, 1950-1955—(*cont.*)

No.	Schemes Proposed.	Capital Expenditure ('000 dollars).									
		1950.	1951.	1952.	1953.	1954.	1955.	Total.	From C.D. & W.	From Loans. 1949.	From Loans. Projected.	From Federation Funds.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	Negri Sembilan—(*cont.*)											
lxviii	50/2 Gemas, 120 feet •	..	..	..	90	..	..	90	..	..	90	..
lxix	5/3 Port Dickson, 140 feet •	..	..	..	..	107	..	107	..	..	107	..
lxx	16/7 Tampin, 80 feet •	..	..	..	..	60	..	60	..	..	60	..
lxxi	58/5 Manchis, 100 feet •	..	..	..	..	..	70	70	..	..	70	..
lxxii	25/5 Tampin, 60 feet •	..	..	..	..	..	46	46	..	..	46	..
	Pahang.											
lxxiii	31/2 P.T.R., 54 feet •	..	17	..	..	..	..	17	..	..	17	..
lxxiv	73/40 Bentong, 40 feet •	..	24	..	..	..	..	24	..	..	24	..
lxxv	80/50 Karak, 230 feet •	..	138	..	..	..	..	138	..	..	138	..
lxxvi	Benta, 210 feet •	..	50	..	..	..	..	50	..	..	50	..
lxxvii	69/1 Bentong, 110 feet •	..	..	100	..	..	..	100	..	..	100	..
lxxviii	73/40 Bentong, 60 feet •	..	..	36	..	..	..	36	..	..	36	..
lxxix	84/20 Mentakab, 110 feet •	..	..	66	..	..	..	66	..	..	66	..
lxxx	73 Tikam, 110 feet •	..	..	54	..	..	..	54	..	..	54	..
lxxxi	69/20 Karak, 130 feet •	..	..	..	78	..	..	78	..	..	78	..
lxxxii	75/60 Karak, 80 feet •	..	..	..	48	..	..	48	..	..	48	..
lxxxiii	85/20 Mentakab, 110 feet •	..	..	..	66	..	..	66	..	..	66	..
lxxxiv	63 Kuantan, 82 feet •	..	..	..	24	..	..	24	..	..	24	..
lxxxv	89 Mentakab, 110 feet •	..	..	..	..	66	..	66	..	..	66	..
lxxxvi	92 Mentakab, 70 feet •	..	..	..	..	42	..	42	..	..	42	..
lxxxvii	Bata Bali, 127 feet •	..	..	..	..	36	..	36	..	..	36	..
lxxxviii	94/46 Mentakab, 150 feet •	..	..	..	..	..	90	90	..	..	90	..
lxxxix	98/40 Mentakab, 90 feet •	..	..	..	..	..	54	54	..	..	54	..
xc	Temporary Bridges, 500 feet •	..	45	45	45	45	45	225	..	..	225	..
	Penang and Province Wellesley.											
xci	Muda River, 310 feet •	..	..	405	..	..	..	405	..	..	405	..
xcii	Jurn River, 300 feet •	..	..	..	350	..	..	350	..	..	350	..
xciii	Ptg. Tinggi, 75 feet •	..	..	..	..	60	..	60	..	..	60	..
xciv	Jawi River, 70 feet •	..	..	..	..	..	55	55	..	..	55	..

• Federal Expenditure.

APPENDIX X—(*cont.*)

PUBLIC WORKS PROGRAMME, 1950-1955—(*cont.*)

No.	Schemes Proposed.	Recurrent Expenditure ('000 dollars).							Notes and Comments.
		1950.	1951.	1952.	1953.	1954.	1955.	Rising to (maximum).	
		(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
	Negri Sembilan—(*cont.*)								
lxviii	50/2 Gemas, 120 feet •								
lxix	5/3 Port Dickson, 140 feet •								
lxx	16/7 Tampin, 80 feet •								
lxxi	58/5 Manchis, 100 feet •								
lxxii	25/5 Tampin, 60 feet •								
	Pahang.								
lxxiii	31/2 P.T.R., 54 feet •								
lxxiv	73/40 Bentong, 40 feet •								
lxxv	80/50 Karak, 230 feet •								
lxxvi	Benta, 210 feet •								
lxxvii	68/1 Bentong, 110 feet •								
lxxviii	73/40 Bentong, 60 feet •								
lxxix	84/20 Mentakab, 110 feet •								
lxxx	73 Tikam, 110 feet •								
lxxxi	69/20 Karak, 130 feet •								
lxxxii	75/60 Karak, 80 feet •								
lxxxiii	85/20 Mentakab, 110 feet •								
lxxxiv	63 Kuantan, 82 feet •								
lxxxv	89 Mentakab, 110 feet •								
lxxxvi	92 Mentakab, 70 feet •								
lxxxvii	Bata Balai, 127 feet •								
lxxxviii	94/46 Mentakab, 150 feet •								
lxxxix	98/40 Mentakab, 90 feet •								
xc	Temporary Bridges, 500 feet •								
	Penang and Province Wellesley.								
xci	Muda River, 310 feet •								
xcii	Juru River, 300 feet •								
xciii	Ptg. Tinggi, 75 feet •								
xciv	Jawi River, 70 feet •								

• Federal Expenditure.

PUBLIC WORKS PROGRAMME, 1950-1955—(*cont.*)

No.	Schemes Proposed.	Capital Expenditure ('000 dollars).										
		1950.	1951.	1952.	1953.	1954.	1955.	Total.	From C.D. & W.	From Loans.		From Federation Funds.
										1949.	Projected.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	Perak.											
xcv	72/4 Route I, 50 feet *	..	41	..	..	..	..	41	..	..	41	..
xcvi	91/5 Route I, 180 feet *	..	146	..	..	..	..	146	..	..	146	..
xcvii	44/4 Route I, 80 feet *	..	65	..	..	..	..	65	..	..	65	..
xcviii	3/97 Upper Perak, 56 feet *	..	42	..	..	..	..	42	..	..	42	..
xcix	8/66 Upper Perak, 55 feet *	..	..	40	..	..	..	40	..	..	40	..
c	23/5 Kampar, 60 feet *	..	..	40	..	..	..	40	..	..	40	..
ci	52/5 Bidor, 140 feet *	..	..	105	..	..	..	105	..	..	105	..
cii	48/8 Changkat Jong, 100 feet *	..	..	..	75	..	..	75	..	..	75	..
ciii	32/8 Route I, 85 feet *	..	..	..	69	..	..	69	..	..	69	..
civ	84/6 Route I, 50 feet *	..	..	..	41	..	..	41	..	..	41	..
cv	1/100 Upper Perak, 45 feet *	..	..	..	34	..	..	34	..	..	34	..
cvi	45/2 Route I, 80 feet *	..	..	..	..	65	..	65	..	..	65	..
cvii	3/73 Upper Perak, 55 *	..	..	..	..	40	..	40	..	..	40	..
cviii	55/3 Route I, 180 feet *	..	..	..	..	146	..	146	..	..	146	..
cix	4/118 Grik—Kroh, 80 feet *	..	..	..	..	60	..	60	..	..	60	..
cx	6/77 Upper Perak, 60 feet *	..	..	..	..	..	45	[illegible]	..	..	45	..
cxi	3/83 Upper Perak, 90 feet *	..	..	..	..	..	70	[illegible]	..	..	70	..
cxii	3/105 Grik—Kroh, 60 feet *	..	..	..	..	..	45	[illegible]	..	..	45	..
cxiii	2/117 Grik—Kroh, 120 feet *	..	..	..	..	..	90	90	..	..	90	..
cxiv	Minor Bridges *	..	..	..	160	210	210	580	..	..	580	..
	Selangor.											
cxv	35/2 Rasa, 180 feet *	..	185	..	..	..	..	185	..	..	185	..
cxvi	11/6 Cheras, 150 feet *	..	..	151	..	..	..	151	..	..	151	..
cxvii	46/2 Sungei Gumut, 66 feet *	..	..	30	..	..	..	30	..	..	30	..
cxviii	22/1 Semenyih, 150 feet *	..	..	..	176	..	..	176	..	..	176	..
cxix	29/1 Klang, 15 feet *	..	..	..	10	..	..	10	..	..	10	..
cxx	Batu Tiga, 45 feet *	..	..	..	..	40	..	40	..	..	40	..
cxxi	Klang, 600 feet *	..	..	..	..	..	900	900	..	..	900	..
	Trengganu.											
cxxii	Temporary Bridges, 7,400 feet *	..	100	100	120	120	300	740	..	..	740	..

* Federal Expenditure.

PUBLIC WORKS PROGRAMME, 1950-1955—(*cont.*)

No.	Schemes Proposed.	Recurrent Expenditure ('000 dollars).							Notes and Comments.
		1950.	1951.	1952.	1953.	1954.	1955.	Rising to (maximum).	
		(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
	Perak.								
xcv	72/4 Route I, 50 feet *	..	..	..	..	..	..	..	
xcvi	91/5 Route I, 180 feet *	..	..	..	..	..	..	..	
xcvii	44/4 Route I, 80 feet *	..	..	..	..	..	..	..	
xcviii	3/97 Upper Perak, 56 feet *	..	..	..	..	..	..	..	
xcix	8/66 Upper Perak, 55 feet *	..	..	..	..	..	..	..	
c	22/5 Kampar, 60 feet *	..	..	..	..	..	..	..	
ci	52/5 Bidor, 140 feet *	..	..	..	..	..	..	..	
cii	48/8 Changkat Jong, 100 feet *	..	..	..	..	..	..	..	
ciii	32/8 Route I, 85 feet *	..	..	..	..	..	..	..	
civ	84/6 Route I, 50 feet *	..	..	..	..	..	..	..	
cv	1/100 Upper Perak, 45 feet *	..	..	..	..	..	..	..	
cvi	45/2 Route I, 80 feet *	..	..	..	..	..	..	..	
cvii	3/73 Upper Perak, 55 feet *	..	..	..	..	..	..	..	
cviii	55/3 Route I, 180 feet *	..	..	..	..	..	..	..	
cix	4/118 Grik—Kroh, 80 feet *	..	..	..	..	..	..	..	
cx	6/77 Upper Perak, 60 feet *	..	..	..	..	..	..	..	
cxi	3/83 Upper Perak, 90 feet *	..	..	..	..	..	..	..	
cxii	3/105 Grik—Kroh, 60 feet *	..	..	..	..	..	..	..	
cxiii	2/117 Grik—Kroh, 120 feet *	..	..	..	..	..	..	..	
cxiv	Minor Bridges *	..	..	..	..	..	..	..	
	Selangor.								
cxv	35/2 Rasa, 180 feet *	..	..	..	..	..	..	..	
cxvi	11/6 Cheras, 150 feet *	..	..	..	..	..	..	..	
cxvii	46/2 Sungei Gumut, 66 feet *	..	..	..	..	..	..	..	
cxviii	22/1 Semenyih, 150 feet *	..	..	..	..	..	..	..	
cxix	29/1 Klang, 15 feet *	..	..	..	..	..	..	..	
cxx	Batu Tiga, 45 feet *	..	..	..	..	..	..	..	
cxxi	Klang, 600 feet *	..	..	..	..	..	..	..	
	Trengganu.								
cxxii	Temporary Bridges, 7,400 feet *	..	..	..	..	..	..	..	

* Federal Expenditure.

APPENDIX X—(*cont.*)

PUBLIC WORKS PROGRAMME, 1950-1955—(*cont.*)

No.	Schemes Proposed.	Capital Expenditure ('000 dollars).									
		1950.	1951.	1952.	1953.	1954.	1955.	Total.	From C.D. & W.	From Loans.	From Federation Funds.
										1949. / Projected.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11) / (12)	(13)
	C.—WATER SUPPLIES.										
	Johore.										
cxxiii	Kluang •	29	275	185	..	..	..	489	..	489 / ..	..
cxxiv	Mersing •	..	..	100	220	..	..	320	..	.. / 320	..
cxxv	Johore Bahru •	..	..	..	300	230	..	530	..	.. / 530	..
cxxvi	Bekok, Jagoh, Beradin and Paloh •	..	..	100	100	200	..	400	..	.. / 400	..
cxxvii	Muar •	..	..	..	..	200	300	500	..	.. / 500	..
	Kedah.										
cxxviii	Bukit Pinang •	29	..	..	..	..	..	29	..	29 / ..	..
cxxix	Alor Star Improvement •	70	..	..	..	..	..	70	..	70 / ..	..
cxxx	Alor Star Enlargement •	..	200	300	50	..	..	550	..	.. / 550	..
cxxxi	Changlun, Tunjang and Kodiang •	..	500	750	250	250	..	1,750	..	.. / 1,750	..
cxxxii	Kulim purification plant, etc. •	..	..	..	..	..	318	318	..	.. / 318	..
cxxxiii	Sungei Patani purification plant, etc. •	..	..	..	..	..	156	156	..	.. / 156	..
cxxxiv	Padang Serai Lunas, etc. •	..	..	250	500	750	500	2,000	..	.. / 2,000	..
	Kelantan.										
cxxxv	Pasir Mas •	100	..	..	..	..	..	100	..	100 / ..	..
cxxxvi	Kota Bahru extension •	..	50	..	..	..	..	50	..	.. / 50	..
	Malacca.										
cxxxvii	Malacca reservoir, etc. •	490	..	..	..	..	..	490	..	490 / ..	..
cxxxviii	Malacca town mains •	..	216	..	..	..	..	216	..	.. / 216	..
cxxxix	Tanjong Kling •	..	..	200	..	..	..	200	..	.. / 200	..
	Negri Sembilan.										
cxl	Seremban and Port Dickson •	400	1,000	1,000	..	..	..	2,400	..	2,400 / ..	..
cxli	Tampin •	..	..	..	250	..	..	250	..	.. / 250	..
	Pahang.										
cxlii	Raub •	105	..	..	..	..	..	105	..	105 / ..	..
cxliii	Pekan •	..	100	150	..	..	..	250	..	.. / 250	..

• Federal Expenditure.

PUBLIC WORKS PROGRAMME, 1950-1955—(*cont.*)

No.	Schemes Proposed.	Recurrent Expenditure ('000 dollars).							Notes and Comments.
		1950.	1951.	1952.	1953.	1954.	1955.	Rising to (maximum).	
		(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
	C.—WATER SUPPLIES.								
	Johore.								
cxxiii	Kluang *	..	..	..	50	50	50	50	
cxxiv	Mersing *	..	..	..	..	32	32	32	
cxxv	Johore Bahru *	..	..	..	..	..	53	53	
cxxvi	Bekok, Jagoh, Beradin and Paloh *	..	..	..	..	..	40	40	
cxxvii	Muar *	..	..	..	..	..	..	50	
	Kedah.								
cxxviii	Bukit Pinang *	..	7	7	7	7	7	7	
cxxix	Alor Star Improvement *	..	7	7	7	7	7	7	
cxxx	Alor Star Enlargement *	..	..	..	..	55	55	55	
cxxxi	Changlun, Tunjang and Kodiang *	..	..	..	..	..	175	175	
cxxxii	Kulim purification plant, etc. *	..	..	..	..	..	..	32	
cxxxiii	Sungei Patani purification plant, etc. *	..	..	..	..	..	..	16	
cxxxiv	Padang Seral Lunas, etc. *	..	..	..	..	..	..	200	
	Kelantan.								
cxxxv	Pasir Mas *	..	10	10	10	10	10	10	
cxxxvi	Kota Bahru extension *	..	5	5	5	5	5	5	
	Malacca.								
cxxxvii	Malacca reservoir, etc. *	..	49	49	49	49	49	49	
cxxxviii	Malacca town mains *	..	22	22	22	22	22	22	
cxxxix	Tanjong Kling *	..	..	..	..	20	20	20	
	Negri Sembilan.								
cxl	Seremban and Port Dickson *	..	..	..	250	250	250	250	
cxli	Tampin *	..	..	..	..	..	25	25	
	Pahang.								
cxlii	Raub *	..	53	53	53	53	53	53	
cxliii	Pekan *	..	..	..	25	25	25	25	

* Federal Expenditure.

PUBLIC WORKS PROGRAMME, 1950-1955—(*cont.*)

No.	Schemes Proposed.	Capital Expenditure ('000 dollars).										
		1950.	1951.	1952.	1953.	1954.	1955.	Total.	From C.D. & W.	From Loans.		From Federation Funds.
										1949.	Projected.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	Penang and Province Wellesley.											
cxliv	Province Wellesley *	1,000	1,000	1,000	500	..	..	3,500	..	2,000	1,500	..
	Perak.											
cxlv	Bidor *	100	72	..	..	..	..	172	..	172	..	..
cxlvi	Grik *	100	63	..	..	..	..	163	..	163	..	..
cxlvii	Lower Perak Improvement *	..	..	500	1,000	1,000	500	3,000	..	..	3,000	..
	Perlis.											
cxlviii	Arau purification plant 1 and 2 *	..	..	..	70	..	..	70	..	..	70	..
cxlix	Arau purification plant 4 *	..	..	..	..	90	..	90	..	..	90	..
	Trengganu.											
cl	Kuala Trengganu *	250	500	500	250	..	..	1,500	..	1,500	..	..
	Selangor.											
cli	Port Swettenham and Klang *	1,300	1,000	1,000	..	..	..	3,300	..	3,300	..	..
cliii	Rawang *	..	..	160	..	..	..	160	..	..	160	..
cliii	Kuala Selangor and Tanjong Karang *	..	..	..	500	1,500	1,500	3,500	..	..	3,500	..
cliv	Kuala Lumpur *	..	..	..	..	..	..	..	..	..	..	..
	D.—WORKSHOPS.											
clv	Workshop—Kelantan *	..	117	..	..	..	..	117	..	..	..	117
clvi	Workshop—Trengganu *	..	..	67	..	..	..	67	..	..	..	67
	E.—HOUSING.											
clvii	Quarters, Class I-V †	1,000	1,000	} 1,000	1,000	1,000	1,000	8,000	..	4,000	4,000	..
clviii	Quarters, Class VI-IX †	1,000	1,000									
	F.—GENERAL.											
clix	Expansion of P.W.D. services	..	..	..	..	..	..	..	..	..	..	..
	Total ..	7,793	13,542	14,028	12,491	10,135	9,672	67,661	3,908	14,818	48,751	184

* Federal Expenditure. † State or Settlement Expenditure.

APPENDIX X—(*cont.*)

PUBLIC WORKS PROGRAMME, 1950-1955—(*cont.*)

No.	Schemes Proposed.	Recurrent Expenditure ('000 dollars).							Notes and Comments.
		1950.	1951.	1952.	1953.	1954.	1955.	Rising to (maximum).	
		(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
	Penang and Province Wellesley.								
cxliv	Province Wellesley *	..	..	..	..	350	350	350	
	Perak.								
cxlv	Bidor *	..	..	17	17	17	17	17	
cxlvi	Grik *	..	..	16	16	16	16	16	
cxlvii	Lower Perak Improvement *	..	..	..	..	..	..	300	
	Perlis.								
cxlviii	Arau purification plant 1 and 2 *	..	..	..	..	7	7	7	
cxlix	Arau purification plant 4 *	..	..	..	..	..	9	9	
	Trengganu.								
cl	Kuala Trengganu *	..	..	..	395	395	395	395	
	Selangor.								
cli	Port Swettenham and Klang *	..	..	..	16	16	16	16	
clii	Rawang *	..	..	..	..	..	..	350	
cliii	Kuala Selangor and Tanjong Karang *	..	..	..	..	..	..	..	
cliv	Kuala Lumpur *	..	..	..	..	150	150	150	
	D.—WORKSHOPS.								
clv	Workshop—Kelantan *	..	..	2	2	2	2	2	
clvi	Workshop—Trengganu *	..	..	..	1	1	1	1	
	E.—HOUSING.								
clvii	Quarters, Class I-V †	..	..	..	..	..	..	..	
clviii	Quarters, Class VI-IX †								
	F.—GENERAL.								
clix	Expansion of P.W.D. services	..	1,000	1,000	1,000	1,000	1,000	1,000	
	Total ..	..	1,270	1,435	2,292	3,072	3,507	4,568	

* Federal Expenditure. † State or Settlement Expenditure.

		Capital Expenditure ('000 dollars).										
		1950.	1951.	1952.	1953.	1954.	1955.	Total.	From C.D. & W.	From Loans.		From Federation Funds.
										1949.	Projected.*	
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
A-D	Social Services (Chapter I)	4,379	14,252	12,142	8,886	8,339	7,249	55,247	14,157	..	..	41,090
	Resources and Utilities (Chapter II).											
E	Agriculture .. .. Para 209	370	681	680	732	300	100	2,863	1,171	..	..	1,692
F	Fisheries .. .. ,, 212	243	2,367	658	..	..	..	3,268	3,268	..	..	..
G	Forestry .. .. ,, 215	1,031	1,207	1,210	1,316	960	860	6,584	751	3,000	1,856	977
H	Geological Survey .. .. ,, 218	662	607	211	80	25	25	1,610	1,610	..	..	..
I	Mines .. .. ,, 221	..	107	168	33	33	37	378	..	..	..	378
J	Veterinary .. .. ,, 224	1,062	662	220	1	20	50	2,015	1,844	..	70	101
K	Co-operative Societies .. .. ,, 227	..	1	2	2	..	..	5	..	..	..	5
L	Information Services .. .. ,, 230	..	55	205	255	105	..	620	400	..	..	220
M	Broadcasting .. .. ,, 233	538	80	209	80	80	80	1,067	358	..	129	580
N	Civil Aviation .. .. ,, 236	305	745	955	775	621	329	3,730	..	..	3,000	730
O	Drainage and Irrigation .. .. ,, 239	4,862	5,204	6,513	4,429	3,590	4,237	28,835	200	12,649	9,080	6,906
—	Electricity .. .. ,, 241	..	..	..	..	..	..	..	..	..	..	..
P	Film Unit .. .. ,, 243	..	251	170	46	..	..	467	431	..	..	36
Q	Housing .. .. ,, 248	..	3,000	..	..	..	..	3,000	..	3,000	..	..
R	Land Settlement .. .. ,, 249	485	485	485	485	485	485	2,910	..	..	..	2,910
S	Marine .. .. ,, 251	..	100	100	100	1,000	..	1,300	..	..	1,300	..
T	Meteorology .. .. ,, 254	..	164	105	160	60	28	517	220	..	..	297
U	Posts .. .. ,, 257	..	96	257	1,084	1,108	52	2,597	..	..	2,000	597
—	Railway .. .. ,, 259	..	..	..	..	..	..	..	..	..	..	..
V	Road Transport .. .. ,, 261	..	97	7	45	146	70	365	..	..	..	365
W	Telecommunications .. .. ,, 264	4,251	8,976	6,600	3,637	3,241	2,890	29,604	..	2,658	24,814	2,132
X	Public Works .. .. ,, 267	7,793	13,542	14,028	12,491	10,135	9,672	67,661	3,908	14,818	48,751	184
	Total ..	21,602	38,427	32,792	25,751	21,909	18,915	159,396	14,161	36,125	91,000	18,110
	Total of Chapter I (Social Services) and Chapter II (Resources and Utilities)	25,981	52,679	44,934	34,637	30,248	26,164	214,643	28,318	36,125	91,000	59,200

* If funds from a new loan are not available in 1951-1952, the parts of the programme depending on loan finance will have to be postponed as necessary.

APPENDIX Y—(*cont.*)

		Recurrent Expenditure ('000 dollars).							Notes and Comments.
		1950.	1951.	1952.	1953.	1954.	1955.	Rising to (maximum).	
		(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
A-D	Social Services (Chapter I)	573	2,093	4,409	7,545	10,553	13,214	17,744	
	Resources and Utilities (Chapter II).								
E	Agriculture .. .. Para 209	..	375	535	661	787	912	917	
F	Fisheries .. .. „ 212	..	42	72	87	87	87	212	
G	Forestry .. .. „ 215	6	273	404	628	689	733	720	
H	Geological Survey .. .. „ 218	113	231	346	423	451	463	480	
I	Mines .. .. „ 221	..	70	156	261	273	273	275	
J	Veterinary .. .. „ 224	..	113	195	252	317	354	356	
K	Co-operative Societies .. .. .. „ 227	..	55	60	65	70	75	75	
L	Information Services .. .. .. „ 230	..	30	60	90	112	117	120	
M	Broadcasting .. .. „ 233	..	14	36	36	37	37	37	
N	Civil Aviation .. .. „ 236	7	23	43	59	72	81	93	
O	Drainage and Irrigation .. .. .. „ 239	200	389	614	804	1,009	1,179	1,475	
P	Electricity .. .. „ 241	..	..	..	..	..	..	..	
Q	Film Unit .. .. „ 243	..	7	19	32	36	36	36	
R	Housing .. .. „ 248	..	..	..	..	..	..	..	
S	Land Settlement .. .. „ 240	..	..	..	..	..	..	..	
T	Marine .. .. „ 251	..	..	..	..	..	..	..	
U	Meteorology .. .. „ 254	..	26	42	133	134	137	145	
V	Posts .. .. „ 257	..	15	46	51	63	64	64	
W	Railway .. .. „ 259	..	..	..	..	..	..	..	
X	Road Transport .. .. „ 261	..	..	..	21	22	22	23	
	Telecommunications .. .. „ 264	523	718	882	1,015	1,135	1,245	1,245	
	Public Works .. .. „ 267	..	1,270	1,435	2,292	3,075	3,507	4,568	
	Total ..	849	3,651	4,945	6,910	8,366	9,322	10,840	
	Total of Chapter I (Social Services) and Chapter II (Resources and Utilities)	1,422	5,744	9,354	14,455	18,919	22,536	28,584	

* If funds from a new loan are not available in 1951-1952, the parts of the programme depending on loan finance will have to be postponed as necessary.

CHAPTER III.

The Development of Trade and Industry in the Federation of Malaya.

CHAPTER III.

THE DEVELOPMENT OF TRADE AND INDUSTRY IN THE FEDERATION OF MALAYA.

PART I.—INTRODUCTION.

273. This is the third of four Chapters constituting a "Development Plan" of the Federation of Malaya (the final one being a Summary). The first of these Chapters dealt with development of the Social Services, and the second with development of National Resources and Utilities—with Government as the developing agency in both cases. The present Chapter is rather more ambitious, as it deals with the development of Trade and Industry (including Production), that is to say with matters which lie, for the most part, outside the field of direct Government intervention.

274. In those circumstances it may well be asked why a development plan is necessary, and if it is necessary, why it should emanate from Government? The answer to the first question is simply that no country can afford to neglect its higher strategy of planning, and rely solely on a tactical approach to its problems as a means of solving them, with all the duplication of effort, one sided development and waste of irreplaceable resources which such an approach may well involve. The answer to the second question is that even in those spheres of commercial or industrial activity where Government exercises no positive direction, the effect of what may be described as negative control—for example, the conditions on which lands are alienated, mining rights granted, or transport facilities given—is such as to render it essential that the individual citizen, whether his capital is a few score or many thousands of dollars, and whether his business is to work with his own hands or to guide the labours of others should know what is the general policy of Government and why it is being pursued. In certain aspects the national policy in regard to the development of trade and industry is well defined, and the means of implementing it have been explored in some detail. In other respects both the ends and the means are uncertain, and in consequence the national policy is liable to be vacillating and ineffective. Some uncertainty is of course inevitable. In economics, as in war, there is no final answer to the problems of strategy and tactics which present themselves. Broad principles, however, can be determined, and an attempt will be made to do so here. Regarding the contents of this Chapter a special warning is necessary. The subject of the economic policy of the country is a vast one, involving a multitude of interests, both public and private, which it would have been quite impossible to consult in advance. It is therefore desired to state, with special emphasis on this occasion, that the present Chapter is merely a draft, in which it is recognized that many modifications will be required, and many additions also, before it can be regarded as accepted policy.

SHORT-TERM PROGRAMME.

275. The future development of Trade and Industry in the Federation of Malaya is of course the key to the material advancement of its inhabitants and hence to their ability to pay for the programmes outlined in the previous Chapters. It is therefore essential to make some estimates, however uncertain, of what increases of production should be possible in the years which lie ahead, given conditions of reasonable peace and prosperity. These estimates are contained in Part II.

LONG-TERM OBJECTIVES.

276. The aim of development is to make the country more prosperous, and the methods will be those of "good husbandry", by which is meant the cultivation of its resources in such a way that, while the individual himself benefits, the wealth of the country is permanently increased. This principle (which must be regarded as fundamental) will be referred to again and again in Part III of this Chapter, where an attempt is made to outline a development policy in respect of the main economic activities in which the people of this country are engaged.

The following list of these activities is not comprehensive and there is, inevitably, much over-lapping between the different items:

(i) Land utilization;
(ii) Food and nutrition;
(iii) Export crops;
(iv) Timber;
(v) Capital formation and credit facilities;
(vi) Minerals;
(vii) Secondary industries;
(viii) Labour;
(ix) Transport and communications;
(x) Marketing and distribution;
(xi) External trade;
(xii) Finance.

The procedure will be to mention in each case what appear to be the chief factors affecting the situation, and, having done so, to consider how, in the light of these factors, the material progress of the country and its people can best be advanced. It will thus be possible to determine in what way the policies of Government should be framed so as to help or at least not to hinder this progress.

GENERAL.

277. It would be convenient if, at this point, there could be brought to the notice of the reader a general economic survey of the country. Unfortunately no such survey exists. It will have to be assumed therefore that the main shape of the Malayan economy is sufficiently well known to need no further description, and mention will only be made of certain salient features. This cannot be avoided, if the general purport of the ensuing argument is to be understood.

278. The population of the Federation of Malaya at the latest census in September, 1947, was 4,908,086, and was made up as follows:

Malaysians	2,427,834	or 49.46%
Chinese	1,884,534	or 38.40%
Indians	530,638	or 10.81%
Europeans	9,607	
Eurasians	5,208	or 1.33%
Others	21,547	

The total figure is higher by approximately one-third than that of the previous census (1931), while the fact that approximately half of the persons counted were persons under twenty years of age (in roughly equal

proportions of male and female) makes it reasonable to suppose that a high rate of increase will be maintained. The population is "settling down", three males out of every four and five females out of every six having been born in Malaya—a very different state of affairs from what existed a quarter of a century ago. The distribution of this population is somewhat uneven, five-sixths of the inhabitants being concentrated in one-third of the total area of the country. Moreover, one out of every three persons lives in a town or on the fringe of one. This is a high proportion in a country depending mainly on its primary produce and having few secondary industries. Some of the centres of population have increased enormously in size since 1931, the general average of growth of the larger towns being in excess of fifty per cent. Many of the present day problems have their origin in this fact.

279. The soil of Malaya is for the most part of poor quality. Much of the country is mountainous, and the excessive rainfall does not favour many forms of agriculture. These facts appear in a less melancholy light, however, if the situation of the Federation of Malaya is compared with that of other regions of Asia, where, although natural conditions are more favourable, the populations have long since reached the maximum size which the land, as at present divided and cultivated, is capable of supporting, and consequently exert a continuous pressure on the means of subsistence. It would seem that once such a situation has arisen the resulting poverty tends to become self-perpetuating. There is no necessity to discuss here why this should be so, since so far as the Federation of Malaya is concerned there is not—it would be safer to say, not yet—any general pressure of population on the land. The steady upward curve of numbers does not spell immediate disaster here, as it would in many parts of Asia.

280. In Malaya, as in the United Kingdom, the growth of population has far outstripped the increase in the local food supply, and the gap between the two is likely to become greater rather than less. So far as rice is concerned, it has been shown in paragraph 143 of the preceding Chapter that even in the most favourable circumstances, local supply will be unable to keep pace with demand. The same is true of many other foodstuffs. Will these foreign supplies be procurable? Considering rice once more, the answer seems to be that over the past few decades population growth in the rice producing (and consuming) countries of Asia has been more rapid than the expansion of the area devoted to the crop and the increase in yearly production, with the result that the amount of rice consumed by the average individual has fallen rather generally. In the most favourable circumstances—of which real peace and political stability are the most important—this tendency could be arrested, and might even be reversed. On the whole, though, it would be safer to assume that the quantities of rice available for export will not increase so as to keep pace with the growth of population in the Federation of Malaya and other rice importing countries, and to bear in mind the possibility that the supply may very well decrease, or even, in time of war, be cut off altogether.

281. The question is, however, not only whether the supplies are to be had, but also whether this country will be able to obtain them. The answer to this second part of this question is that the ability to import rice, or for that matter anything else, must always depend in the last resort on the maintenance of a balance of trade. Some countries are able to attract foreign exchange to their shores by the beauty of their scenery or the geniality of their climate. Other countries, including the Federation of Malaya, have to rely mainly on producing goods and sending

them to countries where they can be sold. (The special case of entrepôt trade is dealt with in Section X of Part III below). It is, however, not enough for a country to produce goods which are required by the rest of the world; it must be able to do so at a competitive price. The Federation of Malaya starts with certain immense advantages in this respect. Geographically it is favourably situated in relation to its customers, whether they be the consumers of its raw materials in Europe and America, or the potential market that exists in Asia for its (so far equally potential) secondary industries. It contains reserves of coal and hydro-electric power which have still to be exploited. It is relatively well equipped with road and rail communications, and it directly adjoins a great centre of international trade, where the commodities of the world are bought and sold. Thanks to its past prosperity the level of general education, technical skill and managerial capacity is high, by Asian standards. These are all solid initial advantages but they are not, by themselves, sufficient to ensure that the products of the country will be low enough in price to attract a purchaser.

282. The common characteristic of almost all industry in Asian countries is that the productivity per head of the population is so very low. Putting this another way, a very large part of the cost of the product is made up of the wages of the labour that produces it. If, therefore, its market price falls below a certain level, the cost of production can only be lowered by reducing wages, and this may not always be possible. It is certainly not always desirable. In Europe, on the other hand, and even more in America, there has been a steady increase over a long period in the productivity of the individual worker, who is paid more because he is worth more, and is worth more because his labour earns more. The Asian worker also can increase his productivity, and it may be worth noting some of the ways he can do it, taking as an example the principal industry of agriculture, in which approximately one-third of the total male population is engaged. Fertilizers may cause "two blades to grow where one grew before" without any increase in manpower. Machinery may multiply the effectiveness of the labour. Improvement of seed or stock may bring in increased returns. Better knowledge may result in the saving of losses due to disease. Reorganization of work may make it possible for the labourer to get through more of it in the same time, or to do the same amount with less effort. Examples could be multiplied of the application of these and other principles to European and American industry, with the result that the productivity of the individual worker has been increased by various forms of labour saving devices and the cost of the product lowered. There is no reason why similar techniques should not be applied to the industry of Asia, though to do so will be to create certain problems of labour and capital, which must now be briefly considered.

283. Capital and resources can be imported, but skilled labour can only be created at home. How is it possible to give the labourer the interest and energy necessary to acquire a new kind of skill? Lack of energy, though partly due to climate and environment, is to some extent attributable to poor health, and unsuitable or insufficiently nourishing food. Lack of interest is a more complex matter. Education is the principal factor in creating interest, or the desire to learn. But education alone is insufficient. A process of rapid industrial development, in the course of which ways of life which have persisted for generations are suddenly changed, will inevitably result in much economic distress and mental disquiet for the persons involved in it. The history of emigration from England by displaced workers in the nineteenth century, the attacks by ignorant men on the machinery which deprived them of a livelihood, the painful story of the growth of the Trade Union movement, the very words

"Industrial Revolution" themselves, show how these problems can be solved the hard way. They can never be avoided altogether, but the consequent hardships can be much lightened if careful attention is given to planning the utilization of labour and industrial relationships, and to the organization of welfare measures which will soften the blow where it falls with the heaviest force. The responsibility for co-ordinating the social services of the country to meet the needs resulting from industrialization is primarily a matter for Government (the subject has been dealt with in the first Chapter of this series), but it has to be mentioned here in order to show how very intimate is the connection between the development of social services and the improvement of the country's economy.

284. With regard to the supply of capital, very considerable changes may be necessary before the Federation of Malaya is in a position to embark on any large scale programme of economic development. The problems are complex, and two points only will be mentioned here. The first is that the bulk of the capital necessary for development of this kind will have to be raised within the country itself. Here it may be remarked that no country is so poor (and certainly not the Federation of Malaya) that its inhabitants are totally unable to save, but there is a great difference between one country and another in what is done with those savings. In a country where so often the poor invest their savings in gold for personal adornment, or as an insurance against hard times, and the wealthy devote their resources to usury, to the purchase of real estate, or to wholesale trade, industry will fail to get the support that it needs. To correct this state of affairs it will not be enough merely to alter the habits and attitude of mind of the savers, it is necessary besides that there should be a properly organized capital market, so that the savings may be channelled into productive investment. This leads to the second point, which is that business capacity—the ability to take such savings and turn them into productive assets—is probably less common among the inhabitants of this country than is often supposed. The business instinct certainly exists, but this is not enough unless it is combined with some knowledge of the system of cost and production control which has contributed so much to the promotion of industrial efficiency in more highly developed countries. Such knowledge is particularly necessary where a country is in the process of changing over to new techniques of industry, which may often prove more rather than less expensive unless carefully introduced.

285. To summarize: the main purpose of this Chapter will be to show in what way the basic resources of this country—consisting of the labour of its inhabitants, the skill available to organize their efforts, the land and what is derived from it, and the capital required to develop it—can be put to their most productive use, and to review the policies which are designed to effect this purpose. On the success or failure of these policies will depend all the efforts now being made to improve the standard of living of the individual and to extend the social and other services dealt with in Chapters 1 and 2.

Part II.—PRODUCTION ESTIMATES, 1950-1955.

286. An attempt must now be made to estimate the possible output of some of the major industries of the Federation of Malaya during the period covered by the Plan. Estimates of this kind are notoriously unreliable even at the best of times, but in the present case they cannot be avoided, as it is necessary to furnish some sort of basis for calculating the capacity of the country to undertake the programme of development which has been set out in Chapter 1 and 2. The industries mentioned are Rubber, Oil Palm, Coconuts, Pineapples, Padi and Rice, Timber, Fish, Livestock, Tin, Iron and Coal.

287. RUBBER.—No new planting after 1948 will have any effect on the production of rubber during the period 1950-1955, and replanting involving the cutting out of trees in bearing will reduce it. In 1946, 1947 and 1948 respectively 1,721, 8,629 and 20,295 acres were planted with improved material, while in 1948 some 13,400 acres were replanted with clonal seedlings. Allowance has to be made for these areas coming into bearing from 1953 onwards, and the general effect will probably be one of increased production.

288. The following estimate of production is made:

1950-1952	665,000 tons.
1953	670,000 ,,
1954	700,000 ,,
1955	750,000 ,,

289. OIL PALM.—The amount of extra production from oil palms planted during the currency of the Plan will be negligible until after 1955. Some areas of palm may pass beyond their economic life during this period, but on the other hand yields per acre from existing plantations may be expected to increase. It is to be noted that plans are at present in hand for setting up a factory which will absorb part of this production locally.

290. The following estimate of production is made:

	Oil.		Kernels.
1950	52,000 tons.	...	10,500 tons.
1951	55,000 ,,	...	10,500 ,,
1952	57,000 ,,	...	11,000 ,,
1953	60,000 ,,	...	11,500 ,,
1954	61,000 ,,	...	11,500 ,,
1955	63,000 ,,	...	12,000 ,,

291. COCONUTS.—Work on breeding and selection now being carried out by the Department of Agriculture will not have any significant effect on yield during the period of the Plan. Current improvements of existing crops may be of some importance, while the drainage schemes referred to in paragraph 239 (lx)-(lxxiv) of the preceding Chapter would if carried out enlarge the present yield very considerably. There is not likely to be any appreciable alteration in the acreage planted.

292. The following estimate of production is made:

	Copra.		Coconut oil.
1950	126,000 tons.	...	63,500 tons.
1951	127,000 ,,	...	64,000 ,,
1952	128,000 ,,	...	64,500 ,,
1953	129,000 ,,	...	65,000 ,,
1954	130,000 ,,	...	65,500 ,,
1955	131,000 ,,	...	66,000 ,,

293. PINEAPPLES.—Under the guidance of the Provisional Working Party, now engaged in implementing the recommendations of the Johore Pineapple Rehabilitation Committee, it is expected that there will be a fairly rapid extension of the acreage under this crop and a consequent increase in production. Better yield per acre will mainly depend on whether a Botanist can be made available, but apart from this the investigations

which have been made and are continuing on such matters as drainage, methods of cultivation, etc.; should begin to show results, even during the currency of the Plan.

294. The following estimates of production is made:

1950	500,000 cases.
1951	750,000 ,,
1952	1,000,000 ,,
1953	1,250,000 ,,
1954	1,500,000 ,,
1955	1,750,000 ,,

295. PADI AND RICE.—In calculating potential yields of padi during the period covered by the Plan, the factor of climate will have to be ignored, although in practice this is always a major influence. The area under cultivation in the 1949/1950 season is taken as 912,000 acres (including dry padi) and the average yield up to that date as being 275 gantangs per acre. Throughout the period under review three factors will be operating to increase both the average yield and the total yield. These factors are, first, the opening of new padi areas, second, the improvement of existing areas through drainage and irrigation, and third, the intensification of yield in both existing and new areas by the introduction of improved varieties, the control of pests and diseases, manuring and better cultivation methods.

296. The following estimate of production is made. The year is the year in which the crop is sown, the tons are tons of rice:

1950	398,000 tons.
1951	416,000 ,,
1952	431,000 ,,
1953	453,000 ,,
1954	469,000 ,,
1955	535,000 ,,

297. TIMBER.—Production of timber may be expected to rise with an increasing population and a rising standard of living, but any rise over and above that dictated by the local demand must obviously be governed by the state of the export trade. The former factor will be taken as accounting for a steady rise of about ten per cent. per annum: the latter cannot really be calculated at all, though some very general deductions may be based on the progress of exports since the war.

298. The following estimate of production is made:

1950	303,000 tons (of 50 cubic feet solid).
1951	350,000 ,, ,,
1952	380,000 ,, ,,
1953	415,000 ,, ,,
1954	450,000 ,, ,,
1955	490,000 ,, ,,

299. FISH.—Estimates of fish production must be treated with considerable reserve. Figures are difficult to obtain, and are not regarded as accurate; allowance has been made for this as far as possible. About one sixth of the total is made up of production from fresh water fisheries, mainly padi fields, and rather less than one seventh is made up of small fish used not for human consumption but for manure, or as pig and duck food.

300. The following estimate of production is made:

1950	132,800 tons
1951	139,900 ,,
1952	147,000 ,,
1953	154,100 ,,
1954	161,200 ,,
1955	168,400 ,,

301. LIVESTOCK.—The making of a census of animal population is similarly beset with difficulties, and estimates need to be regarded with caution. Provided the restrictions on slaughter of buffaloes are maintained, these animals may be expected to increase in number to a maximum which will be reached about 1955. The oxen population has been diminishing since the liberation and there is no immediate expectation of being able to check this decline while the shortage of slaughter cattle from outside Malaya continues and the cost of feeding stuffs remains high. It is reasonable to hope that conditions in both respects may improve during the currency of the Plan, and the present downward trend reversed. The goat population has been and is likely to continue increasing rapidly, though the rate is likely to be highest during the next two or three years. It is probable that the sheep population will remain fairly constant. Pig-rearing is a business which has expanded greatly during post-war years and if it is correctly assumed that supplies of pig food will continue to be available in the quantities required, it is likely to expand still further. The greatest increase of all, however, is likely to be in respect of poultry, now that the existence of a vaccine against Ranikhet disease has caused one of the principal limiting factors in the growth of the industry to be removed.

302. The following estimate of production is made:

	Buffaloes.	Oxen.	Goats.
1950 ...	220,700 ...	234,500 ...	243,000
1951 ...	231,600 ...	233,500 ...	279,500
1952 ...	238,500 ...	233,000 ...	313,000
1953 ...	243,300 ...	234,000 ...	344,000
1954 ...	245,700 ...	238,000 ...	368,000
1955 ...	246,000 ...	242,000 ...	386,500
	Sheep.	**Swine.**	**Poultry.**
1950 ...	20,000 ...	600,000 ...	11,000,000
1951 ...	20,000 ...	650,000 ...	12,000,000
1952 ...	20,000 ...	700,000 ...	13,000,000
1953 ...	20,000 ...	740,000 ...	14,000,000
1954 ...	20,000 ...	800,000 ...	15,000,000
1955 ...	20,000 ...	820,000 ...	16,000,000

303. TIN.—The production of tin during the period 1950-1955 will depend largely on the metal-price, the world supply and demand, the policy of stock-piling the metal for strategic purposes, and the progress of international co-operation in tin. Internal conditions in Malaya will also have their effect.

304. The following estimate of production is made, not taking restriction into account:

	Tin-metal.
1950	61,500 tons
1951-1955	70,000 ,,

305. IRON.—Only one mine is now in operation. Further prospecting will be done in the future, but with the time necessary to do this work and the need for large-scale mechanisation of mines of this type, it is doubtful if other mines will go into production during the period 1950-1955.

306. The following estimate of production is made:

	Iron-ore.
1950	600,000 tons
1951	900,000 ,,
1952	1,050,000 ,,
1953	1,200,000 ,,
1954	1,350,000 ,,
1955	1,500,000 ,,

307. COAL.—The only important coal deposit in Malaya is situated at Batu Arang in Selangor. Rehabilitation of the opencast and underground mines is progressing and a general increase in production is to be expected. It is to be noted that plans are at present in hand for setting up a cement factory which will absorb a part of this production.

308. The following estimate of production is made:

	Coal.
1950	400,000 tons
1951	450,000 ,,
1952	550,000 ,,
1953	600,000 ,,
1954	650,000 ,,
1955	700,000 ,,

PART III.—PRINCIPLES OF POLICY.

NOTE.—This Part is divided into the following sections:

(i) Land Utilization	Paras.	309-318
(ii) Food and Nutrition	,,	319-333
(iii) Export Crops	,,	334-354
(iv) Timber	,,	355-372
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(vii) Marketing and Distribution	,,	394-398
(viii) Transport and Communications	,,	399-414
(ix) Labour	,,	415-420
(x) External Trade	,,	421-435
(xi) Capital Formation and Credit Facilities ...	,,	436-448
(xii) Finance	,,	449-460

(i).—LAND UTILIZATION.

309. The surface of the earth is beginning to become crowded, in Malaya, as elsewhere, and with a wider appreciation of this fact the necessity for well considered plans of land utilization is now generally admitted. Even in this country it is no new conception—over a hundred years ago some unknown Land Officer in Malacca, correctly anticipating future needs for development, decided to abandon the practice of alienating land by Statutory Land Grant, and began instead to give it out on long

lease. The fruits of his farsightedness are apparent at the present time, when many of these 99-year leases in or near the town are "falling in" and providing the opportunity for long desired developments to be undertaken. This new policy (which it may be imagined was instituted in the face of strong opposition) was in marked contrast to that pursued by his predecessors, who for the most part had little thought for the trouble they were storing up for future generations by their lack of forethought and planning—habits which unfortunately persisted with the result that to-day, in both States and Settlements, the shortage of State or Crown land has often necessitated the re-acquisition of land for public purposes at an exaggerated cost. In more recent times, bitter experience of the mistakes of the past has resulted in a greater awareness of the responsibilities for the future which are undertaken every time that a transaction in land is approved. There is now no lack of planning in this sphere and such mistakes as have been made can be put down to the fact that the planning was based on the wrong assumptions, or did not take into account all the issues involved, or was insufficiently co-ordinated.

310. The planning of land utilization in Malaya, both constitutionally and as a matter of plain common sense, is a regional responsibility of the States and Settlements. Such planning has to take into consideration and inter-relate a vast number of independent, complementary and often conflicting needs, the relative importance of which can only be gauged by the authorities which are intimately concerned with the fulfilment of these needs and which will have the responsibility of carrying out the decisions which are made. It is possible to go further than this and to say that in the particular circumstances of Malaya, where the regions concerned are for the most part separated by genuine natural boundaries such as ranges of mountains or expanses of forest, the situation is not likely to arise, as it has arisen for instance in the United States, where in order to safeguard a river system traversing the territories of a number of different States, it has been necessary to take special powers to ensure that development in one of them may not react to the disadvantage of the others. When all is said and done, however, it is clear that even if the needs of development vary widely between one State or Settlement and another there must be many problems common to them all which can be usefully discussed against the general background of national policy. In addition, there are, of course, a number of matters (of which communications are an obvious example and important enough to be discussed separately, in Section VIII below) which must be co-ordinated from the outset if they are to be developed effectively. The construction of an air port, the exploitation of a coal deposit, the opening up of resources of hydro-electric power are other examples of forms of development which, though national in character, must be integrated as closely as possible with regional policies of land utilization. There can in fact be no hard and fast division between the interests of the part and the interests of the whole.

311. As was stated in the first part of the Chapter, the object of policy must be to conserve the resources of the country and to increase the productivity of the individual—certainly the former and wherever possible the latter, for the two are in no way incompatible. The various aspects of land utilization policy which will be mentioned below may be examined with this criterion in mind.

312. In logical order there must first be noted the necessity of *geological surveys*. The need for having such surveys made before settling the future lines of land development is certainly no less well understood in Malaya than elsewhere, and no further consideration need be given to the subject, which has been discussed already in paragraphs 88-95 of Chapter 2.

313. Hardly less necessary are *soil surveys* [*see* paragraph 209 (i) of Chapter 2]. In the past, in the race to grow cash crops for export, such as rubber and coconuts, many thousands of acres were alienated for this purpose which a soil survey would have shown to be suitable for padi growing. From the earliest days of the Straits Settlements down to modern times planting of gambier or pineapples has been permitted on sloping quartzite soils, leading to loss of fertility and erosion. Such errors of judgment will be unpardonable in the future when the means exist of testing the soil for the suitability of crops which it is proposed to plant, and are in fact very generally employed by all the more progressive estates, with resulting benefit to themselves and to the economy of the country.

314. In any plan of land utilization in this country the *policy in regard to smallholdings* must be expressed very clearly. It will of course vary enormously in different parts of the country. The prosperity of Malaya in the long run will depend on the economic efficiency of the smallholders, but a great deal more basic research is still required before a solution can be found to their many problems. Not only the methods but even the aims of policy are far from clear. When other countries in which the science of agriculture is furthest developed are already abandoning the idea of the "general purposes" farm as uneconomic, it is legitimate to doubt whether this, which has for so long been accepted as the ideal type of farm for the tropical smallholder, is in fact a desirable development. It may even be that the ideal has persisted for so long because it is seldom attainable in practice (while there are smallholdings which combine both cash and subsistence crops, say rubber and padi, they are in the minority). As long as there exist any doubts on this matter whatever land utilization policies exist must inevitably be suspect. The scheme for an agricultural survey mentioned in paragraph 209 (ii) of the preceding Chapter may be expected to supply some of the basic facts but the matter is essentially one for detailed study on a regional basis. The problem is an urgent one. It is no accident that one in every three out of the population of the Federation lives in or near a town, while the centres of productivity are in the country. On the contrary it is the clearest possible indication that rural development has taken a wrong turning, and is in need of redirection.

315. The question of smallholdings policy leads naturally to a consideration of whether existing land legislation is an effective instrument of policy. One of the tests is whether forms of development which are undesirable (using once again the criterion of better conservation and greater productivity of the soil) are prevented or encouraged by it. There is for instance the problem of *sub-division of holdings*. In some of the older settled areas pressure of population on the land has resulted in sub-division until the size of the average smallholding is reduced to well below three acres. Holdings of that size are too small to provide a family with a reasonable standard of living. Padi areas are often so far sub-divided that even a bumper crop will not meet the family's needs, and there is no guarantee that the holdings in new irrigation areas, on the development of which large sums of public money have been spent, may not in a few years be so sub-divided as not even to provide their occupants with a subsistence, let alone any increase of the country's food supplies. The growth of population can only make matters worse. One obvious step would be to prohibit the sub-division of smallholdings below a certain acreage by law. If, as has been suggested, this solution would run counter to Moslem law, some other means of achieving the same end must be sought.

316. A further problem closely connected with land utilization policy is that of *absentee landlordism*. This is a growing evil which in parts of the country has reached serious proportions, and without effective means

having been found hitherto to check it. Some of the transfers of land from cultivator to absentee owner are not registered in the Land Offices for various reasons, including the Malay Reservation Enactments.

317. The *terms of alienation* of land may be such as to promote or to retard its development along sound economic lines. Sometimes a wrong policy may lead to most detrimental results. One of the most noticeable features of post-war land administration in Malaya has been the extensive use made of temporary occupation licences. The reasons for this need not be discussed, but there can be no concealing the results, which are apparent in the bad agricultural practices which are at present ruining large tracts of the country. The holder of a regular title would not for temporary gain abuse the fertility of the soil in such a fashion.

318. Finally, in *town planning* the policies of land utilization reach their highest degree of specialization. Haphazard development of built up areas which, in its early stages, is merely a nuisance, becomes in course of time a very great evil. The growth of urbanization in the Federation will inevitably lead to the assumption of wider powers by Government or local authorities to control it.

(ii).—Food and Nutrition.

319. A complete understanding of the national policy on this vital matter is not possible without some reference to past history. The aim of self-sufficiency for Malaya was probably first proposed officially in 1896 when Sir Frank Swettenham urged that rice-growing be stimulated by the construction of irrigation works "to free us from our dependence on foreign countries for the supply of our staple food". It was in this period that the irrigation works at Krian were constructed. Then came the rubber boom, and with it a change in the point of view. Officials and unofficials concurred in the view that Malaya should concentrate on growing the profitable crop of rubber, and buy its rice more cheaply from abroad. Generally speaking, as long as the situation of the country was prosperous, this opinion has continued to be held. Whenever there has been an economic setback, Sir Frank Swettenham's policy has returned to favour. Thus in 1917-1921, when the rice crops failed in India and Siam, and again during the great economic depression in the early thirties the question of encouraging domestic supplies assumed fresh importance. More recently the experience of the Japanese occupation and the uncertain outlook in the field of foreign affairs have once more led to a reconsideration of Malayan policy in the matter of local food production.

320. To remove any lingering doubts, it may be admitted at once that the simple solution advocated by the Resident General of the Federated Malay States more than half a century ago is no longer completely practicable to-day. As regards rice, the future prospects have been calculated in some detail in paragraphs 141-143 of Chapter 2; it will be seen that the figures quoted there do not add up to self-sufficiency or anything like it. As regards the general food supply of the country, the total cost of nett imports of food and drink into Malaya (Federation and Singapore) in 1949 was more than $500 million. These facts help to indicate what the future policy of the country in the matter of food supplies should be. In the first place it is apparent that with a rising standard of living and an expanding population there cannot be much hope of reducing substantially the very large quantities of imported food; on the contrary they are likely to become even greater in future. There is only one way of paying for these imports of food (and for the many other necessities of life which our complex civilisation demands) and that is by increasing the quantity and the value of exports, i.e., rubber, tin,

palm oil, etc. The possibilities of doing this will be explored in the next Section dealing with Export Crops. In the second place, if anything is to be learnt from the lessons of the past it is that, however profitable the export trade, Malaya must be prepared to sacrifice a part of it in order to be able to build up a strong and healthy agricultural system which will supply as much as possible of those types of food which the climate and soil of Malaya are best suited to produce.

321. While such a policy is unexceptionable in theory, it is likely to cause difficulties in practice. The following case may be taken by way of illustration. The only lands where wet padi can be grown in Malaya are the flat, alluvial lands on the coast or in the plains traversed by the great river systems. These when properly drained are among the best lands, and for that reason they are also in demand for the production of export crops. The wet padi grower is like the tin miner in that the site of his activities is dictated to him; the latter has to operate only where tin is to be found and the former can grow wet padi successfully only where soil and water control is satisfactory. This should make it clear that the correct policy in land use is to reserve the flat lands with fertile soil for wet padi and to grow Malaya's other crops on undulating or hilly lands. In the past the lure of rubber or coconuts has been so strong that even lands expressly alienated for wet padi growing have been planted with these tree crops. To complicate matters further, these flat lands sometimes overlay rich deposits of tin; some of these tin bearing lands have not yet been alienated to mining, and it is probable that prospecting will reveal further areas at present alienated to agriculture. This state of affairs throws emphasis on the urgent need for surveys to ascertain the mineral resources below ground and the agricultural potential of the soil before a detailed land use policy can be drawn up. The fact of the matter is that whatever the decision regarding the use of land may be, it tends to be a final decision. Money having been invested in planting rubber or digging irrigation channels cannot be taken out and put into circulation again. Mining is different, at any rate in theory, for it is merely a temporary use. But even so there are cases of the same land going on being mined for a full century.,

322. There are certain further facts which any planning of the development of agriculture in relation to the food supply must take into consideration. The first of these is the fact that the climate of Malaya—except in the extreme north—is not ideally suited to the production of grain crops. The world's granaries whether of wheat, maize, the millets, pulses or rice occur in those areas where there is a marked climatic division from a wet into a dry season. This clear-cut differentiation into seasons does not occur in most of Malaya. The second fact is that the soils of Malaya are generally poor. These two facts in conjunction inevitably point to an agriculture based on tree crops, and this is actually what has occurred. If the prospects of greatly increasing Malaya's grain crops are poor, there remains the possibility of expanding another supply of food—the root crops. These include cassava, tannias, yams and sweet potatoes all of which grow well in Malaya. The trouble is that the Malays in particular and, in only a slightly lesser degree, the other inhabitants of the Peninsula are by choice rice eaters and only near-starvation would make them alter their basic food. Moreover, it is generally agreed that rice is much more nutritious than the root crops; to endeavour basically to change, and thereby to lower, the diet of the people to obtain national self-sufficiency in food would be a resort justified only by a complete breakdown in trade with the rest of the world. Such conditions occurred during the Japanese occupation, and it is interesting to note that they turned to the root crops—mainly cassava—to fill the gap caused by the cessation of imports.

323. No general answer can be given to the question—food crops or export crops—because so much will depend on the type of cultivation in each case. It is clear that a decision in favour of the former could be given with far greater confidence if *mechanisation of rice cultivation* were to become commercially possible. At present it is calculated that, out of a total crop of 300,000 tons of padi in an average year, the growers themselves consume 121,000 tons, leaving a surplus of 179,000 tons. Not only is the productivity very low, but the rice is expensive. It is said to cost about twice as much to produce as rice in Thailand and Burma, even leaving out of account the cost of irrigation. Mechanisation of production would change all that, and immensely increase the productivity of the farmer, besides enhancing his profits. This explains the great importance which is attached to the experiments in mechanisation of padi cultivation which are now in progress.

324. It is necessary to mention in passing that the work of many years in improving strains of padi was lost during the Japanese occupation and the results of the work now being done still lie in the future. The artificial fertilizer which will have a useful effect when applied to the Malayan padi field is still being sought but has yet to be found. These however constitute routine activities of the Department of Agriculture, and call for no special comment. The padi planter could do much to improve his economic situation and the productivity of his holding by *off season planting* but in many areas to do so would be to deprive his stock of the only decent pasturage they enjoy during the year.

325. A further aim of policy can be distinguished in regard to home grown rice. The polished rice of commerce provides little more than warmth and energy. If it is not adequately supplemented beriberi and other deficiency diseases result. Probably the biggest factor in malnutrition in this country has been the consumption of polished rice without the addition in other forms of the necessary minerals and vitamins which have been removed from it in the course of milling. The high standard of health, as evidenced by low infantile mortality rates, which has been enjoyed in this country in recent years, is probably largely to be accounted for by the fact that the cheapest quality of rice, i.e., rice on the ration, has been undermilled rice, in which most of the valuable vitamins have been retained. The policy of undermilling has now had to be abandoned, as undermilled rice rapidly loses palatability if stored for more than a few weeks and could no longer be sold when supplies of polished rice became abundant. There is a way of fortifying polished rice by adding to it synthetic vitamins, which is already in use to a certain limited extent; rice so dealt with has proved effective in controlling outbreaks of beriberi in other countries. Experiments are also being made in various countries, including Malaya, on methods of processing rice whereby its full nutrient value can be retained in the course of milling. These experiments have not yet reached the stage when their results can be adopted on a commerical scale. It will be important to observe whether, in the course of the next year, there are any signs of deterioration of health among the lower income categories of the population; if there are, the inference can fairly be drawn that the deterioration is due at least in part to the change over from undermilled rice to the polished rice now being generally consumed. It may then prove necessary to adopt a policy of fortifying rice as an interim measure, to be followed by improved processing as soon as it becomes practicable. All these facts point to the conclusion, which will be reinforced by other arguments in Section VI below, that the business of *rice milling in Malaya should be firmly controlled in the interests of producers and consumers alike.*

326. Although rice is the staple food of the country there are definite trends which have been observed though not yet analysed towards a greater variety of diet. In considering this fact and its bearing on the policy which Malaya should adopt in the matter of local food production there are three principal factors to be borne in mind. They are as follows:

(*a*) what items of food or drink are particularly important from a nutritional point of view,

(*b*) which of these items can be produced economically in Malaya, and

(*c*) which of these items are at present imported in considerable quantities.

Due regard must be had to other factors—e.g., there are certain items which may not be strictly necessary from a dietetic point of view but which would be very greatly missed if they could not be obtained. The three factors named are however the principal ones. It is not necessary here to go into details, but as regards (*a*) it is well known that one of the chief deficiencies is in respect of proteins of animal origin, i.e., meat, fish, eggs, etc. As regards (*b*) it is fortunate that the prospects of increasing the local production of many of these items are more favourable than they are of increasing substantially the local production of rice. As regards (*c*) the following list of some of the major (nett) imports of food into Malaya in 1949 and of their value will at least provide a starting point for discussion.

Item.	Value of nett imports—1949 (pan Malayan figures).
Animals for food	$ 3 million
Meats of all kinds	10 ,,
Fish, dried, salted, fresh or canned ...	16 ,,
Eggs, fresh or salted	4½ ,,
Milk and milk products, such as butter, cheese, ghee	45 ,,
Beans, dhall, gram and maize, etc.	8 ,,
Fruits, fresh, dried or preserved (excluding pineapples), and fruit juices	21 ,,
Vegetables, canned, dried, or fresh (excluding onions and potatoes)	11 ,,
Tea, black and green	1 ,,
Coffee, fresh and ground	7½ ,,
	Total of $127 million (compared with rice imports valued at $218 million)

327. It will be convenient to take the agricultural products first, following the order adopted in other parts of the draft plan. It would certainly be possible greatly to *expand the production of Malayan fruits*, of which there is a large variety of high quality. They could easily displace much of the imported fruit. The problems involved are mainly those of marketing and distribution, which in view of their general application will be dealt with in Section VII of this Chapter.

328. It is a matter of common observation that there has been an enormous *increase in the production of vegetables* in Malaya during the past decade but it is evident from the figures quoted that there is room for further expansion, particularly when it is remembered that long established

habits in the matter of food are not quickly changed, and that locally grown vegetables are not yet as popular as they may ultimately become. The ways in which the market gardener requires help are better seed and cheaper fertilizers, better marketing arrangements, and a sympathetic land policy.

329. Tea and coffee are not altogether appropriately included in this section. Tea is an important export crop but much of what is consumed locally is grown overseas and there are undoubtedly possibilities of influencing the public taste to a greater extent than has been attempted so far in favour of the locally produced article. The *encouragement of coffee* as a smallholders' crop for local consumption should continue; the bushes need little care once they have become established and the demand for their produee is steady.

330. Another obvious aim of policy is that of *increasing Malayan egg production*. One of the chief factors that prevented Malaya from being self-sufficient in eggs and poultry in the past was disease, and particularly Ranikhet (Newcastle) disease, but this as a major deterrent to potential poultry keepers has now been removed with the advent of a reliable prophylactic vaccine against it. Other more important limiting factors to-day are the shortage and high cost of feeding stuffs, especially padi, and ignorance of elementary methods of sanitation for the rearing and housing of young chicks, and of poultry nutrition.

331. Turning now to livestock production and to an examination of the limiting factors in stock rearing, it is plain that there is a host of problems awaiting solution. The most serious by far of these is the problem of pasturage. Scientific dairy farming in Malaya has shown that this difficulty can be overcome if careful attention to the health of the animals is combined with skilled management of the feeding grounds. Unfortunately the ordinary stock farmer in Malaya is not an agriculturist, and the agriculturist is not a stock farmer so a solution along these lines is not easy to obtain. Other more hopeful solutions may exist but they have not yet been fully worked out. It is almost an absurdity that the growth of an oil processing industry in this country has been handicapped up to date by the lack of a local market for animal feeding cake, its chief by-product. The *promotion of stock rearing* can therefore be confidently recommended as one of the ways in which Malayan productivity could be most rapidly increased, if full advantage were to be taken of existing scientific knowledge. It may however be as well to mention some of the questions which will first have to be answered before any significant forward steps can be taken. What are the most profitable classes of livestock to rear bearing in mind their functions in providing draught, milk, meat, manure and other products? What breeding programmes offer the best hope of success in developing and improving these livestock? How are they to be kept in the best possible health and thereby in the most productive conditions? How can the livestock industry be most advantageously mingled with crop production? How can the milk and meat yield of Malayan livestock be increased? These are the technical questions, but there are psychological considerations of at least equal importance. New traditions of minding livestock have to be created among people who have never had them. Habits of drinking milk have in some cases to be formed. Markets have to be organised at which the seller can obtain a fair price, and where the buyer may be able to avail himself of facilities for disposing advantageously of the animal by-products, hides, skins, bones, etc.

332. For a country with a long coastline and seafaring traditions the *expansion of fisheries* provides the most obvious method of making good a protein deficiency in the national diet. The fishing industry is however a

[*From a drawing by Patricia Morley.*

A Chinese egg-seller.

very complex one and without a good deal more investigation into its problems it is difficult to say precisely where and in what way the improvements had best be effected, or how capital can be invested in it without being wasted. A brief note may be added showing what these problems are. In the first place it is necessary to know what fish stocks exist in the sea, how they are to be conserved and how overfishing is to be prevented (within certain limited areas it has already occurred). Next there are the technical questions of the type of equipment, of fishing boat and of navigational aids which could be employed to increase the catch. Many new types which could probably be used to great advantage have not been proved in actual operation. New methods of fishing obviously lead to a consideration of training of the fishermen, and this in turn invites an answer to the question of how the expanded industry should be organised—in small units as at present or in larger combines. However this matter cannot be considered in isolation, but will depend on the measure of reorganisation which is required and can be introduced in the marketing and distribution of the fish when it is landed. In this connection there is also the distribution of fresh water fish to be considered, though the bulk of this is consumed at home. The fresh water fisheries of the peninsula and the stocking of padi-fields with suitable fish offer considerable opportunities for expansion, particularly by the inclusion of a small fish-culture unit in the mixed smallholding of the rural peasant. However further research is necessary before they can be developed to the full.

333. Finally before leaving the subject of food and nutrition it may be mentioned that three crops which are actually or potentially of the greatest importance to the domestic food supply will be dealt with in the following Section on Export Crops. The three are coconuts, pineapples and palm oil. The nutritional value of coconuts is fairly well recognised and they have a well established and important place in the national diet. Pineapples too are widely consumed, though they are not so popular as they might be. Palm oil however is hardly consumed locally at all, except by prisoners and inmates of other institutions who have no choice in the matter. It is an extremely valuable foodstuff and probably if it had been developed as a smallholders' rather than as an estate crop there would be a considerable demand for it. A *greater local consumption of palm oil* would be fully in accord with the general principles of a food and nutritional policy as enunciated earlier, but as this would necessitate a major change in existing habits it is likely to come about only slowly.

(iii).—Export Crops.

334. There is no lack of literature on the subject of the export crops of Malaya, or of suggestions regarding the policy which should be adopted for their encouragement. There have not been any serious doubts felt in this country, as in some others, about the wisdom of continuing to expand the area dedicated to the production of such crops, as long as it appeared economically profitable to do so. For in Malaya while there have at various times been shortages of labour or of capital there has been no general shortage of land such as to limit expansion of this type. Nor, provided that a sensible policy of land utilisation is followed, are any serious difficulties likely to arise from this cause for some time in the future.

335. In the previous Section dealing with Food and Nutrition it was suggested that it should be an object of policy to ensure that a considerable part of the total resources of capital and labour which are available for agricultural purposes, was employed in the production of food crops. It was shown that historically this policy is no new one, but has received very varying emphasis at different periods. But it was also made clear

that with a climate which is inimical to the production of grain, and with a large and expanding population to be fed, Malaya cannot hope to meet more than a part of its requirements in the matter of food, which must therefore continue to be imported from overseas, and paid for by other produce which the world wants and Malaya can provide. In the future, as in the past, this will render necessary a policy of active encouragement of the growing of agricultural produce for export.

336. There are a number of crops in this category, and each of them has its own particular problems, which will be dealt with very summarily in the concluding paragraphs of this Section. The major part of it will be taken up in considering problems which are common to most if not to all of these crops, which are referred to below as export industries. This treatment of the subject is not only more appropriate to the present occasion but will make it possible to avoid much unnecessary repetition of facts already well known.

337. The first of these objects of common policy is what is known as *diversification of crops* or, put more bluntly, the object of lessening Malaya's dependence on the single crop of rubber. The reason for this is not solely so that the economy of the country may be safeguarded in time of economic depression for, as has often been pointed out, when the price of one primary product falls significantly, the decline is often a general one. Even so there is at least a partial protection. Moreover there are other reasons favouring a policy of diversification. A mortal disease of the main crop, a change in use, or a change in public taste which makes it no longer profitable to produce, are various factors capable of causing great loss of revenue the effects of which are mitigated if other crops in the same country are unaffected and continue to be produced on a considerable scale. Finally it is not to be expected that, in a country with a wide variety of soils, one crop will be the best crop everywhere, and diversification is therefore fully justified even from the purely agricultural point of view. All these facts are of course very well known but they have not always been acted upon.

338. *Intensification of yield* is a further aim of policy almost too obvious to need mention. The economic advantages of being able, through the use of improved material, to double or treble the yield of a crop in a given area, without any corresponding increase in overhead costs, are not likely to be disputed. Improvements in quality, taste, etc., come within the category. And yet in many cases the old unimproved strains continue to be planted, while there are many among those who use the better stock who nevertheless decry the research which made it possible.

339. Research is indeed an indispensable requirement of any industry, agricultural or otherwise, which aims to lower its costs of production while increasing its output. To say that research has received insufficient attention in Malaya in the past is not to imply that it has been entirely neglected. Malaya has a better record in this respect than many other countries. But what has been done is not nearly enough; there must be more emphasis on it in future, and the question is, how should such research be organized? A probable solution is to set up several *specialized crop research institutes* for each of the export industries, and independently financed by them. The Agricultural Department would cease to concern itself with their problems, and be able to concentrate its energies on basic research, on general undertakings such as soil surveys, on the development of new crops and new systems of agriculture and on guidance of the smallholder. It may be freely admitted that the organization of such separate research institutes is not likely to prove an easy matter, nor

would they all conform to the same pattern. An industry would of course need to be of a certain size before it could contemplate setting up its own institute, and would not in any case be able to do so without a certain measure of preparatory organization.

340. This leads to the next point. It is considered that, where they do not already exist, there is a strong case for encouraging in each industry the *formation of associations* representing its various planting, processing and marketing or exporting interests, and the case becomes all the stronger if, as has been suggested, separate crop research institutes should come into existence. But there are many other justifications. Combinations of this kind give strength to their members by providing a medium for the exchange of information, for communicating to them matters of importance, for ascertaining their views and conveying them authoritatively to the right quarter, for acting as an intermediary should any question of bulk buying or selling arise, and finally for providing machinery for advising on and if necessary imposing fixed standards or grades of the produce exported.

341. The last of these matters, i.e., the *adoption of standards* is likely to become increasingly important. Buyers of raw or semi-processed materials will become more and not less discriminating as conditions of shortage which have prevailed over the past ten years give way to conditions of abundance, and produce bearing a known and proved mark, or conforming to well established standards is much better equipped thereby to maintain its position in competitive markets than produce whose quality cannot be determined without actual inspection, and which may vary considerably between one consignment and another. Once more there is no universal solution; each type of produce is a law unto itself and provides its own individual problems.

342. In addition to the domestic functions which the agricultural and industrial associations already mentioned might have, there is scope for them to *organize common facilities for market research*. It is noteworthy that the larger manufacturing businesses already attach great importance to this matter, employing special agents to look for new markets, to advise on how to expand existing ones, to arrange advertising campaigns, to check consumers' preferences, to present a case for tariff concessions and to do a multitude of other things which the manufacturer, living far removed from these markets and having no special knowledge of them, is unable to do for himself. The case of the producer is superficially different, but fundamentally similar. The small producer cannot of course undertake the cost of such investigations himself, and even the big producer cannot afford to do so to the extent that it is worth while doing, particularly where heavy expense is involved from which he personally may not derive any special benefit (e.g., an advertising campaign in favour of a product which will result in the same benefit to a competitor as to himself). Here again, the combination of effort may be very difficult to organize, but if these difficulties can be overcome the result of the collective effort may be many times that of unco-ordinated individual ones.

343. Finally, and before turning to the problems of the individual export industries on which a statement of policy appears to be desirable, it will be convenient to refer once more to the general question of diversification and to mention the aim of expanding the *production of minor export crops*, the possibilities of which have tended to be overlooked as a result of the emphasis accorded to the "staple" products. If the history of commerce proves anything at all, it is that any one of these minor crops may in the future possess an importance quite undreamed of at present,

and on this ground alone as much encouragement as possible should be given to their development. A list of some of these crops is therefore given; all of them are suitable, in terms of cultivation and climate, for production in Malaya. They include arecanuts, manila hemp, derris, coffee, pepper, kapok and cashew nuts. With the possible exception of manila hemp all these crops which are already being grown on a small scale in Malaya find a local market. It will be remembered that before the war the Netherlands East Indies were large exporters of coffee and virtually controlled the world markets in pepper and kapok.

344. Among the major export crops rubber has pride of place. No one can say with certainty what will be the future for rubber, in say ten years time, but it is reasonable to assume that demand—for natural rubber—will be no less than it is to-day. What is certain is that, come boom come slump, those who produce natural rubber most economically will be in the best position to meet the situation whatever it is. For that reason it is of the utmost importance to Malaya that the factors which lead to efficient production should be appreciated and put into practice as soon as possible. Chief of these factors is the use of high yielding planting material. The estate industry has not been slow to adopt improved planting material, but the smallholder is reluctant to face replacing his old unselected trees with the new high yielding strains, thereby losing income until the new come into bearing. This is a major problem and one which may be solved only indirectly by the smallholder extending his cultivations into the still great expanses of Malayan jungle. The direct method—of replanting a part of his existing holding—may or may not be technically possible; it is still too early to say. The loss of income (which applies equally to estates) is inevitable, but it may be reduced if the period of waiting can be reduced from seven years, as it is at present, to something less. Again, it is still too early to say whether this is a possibility.

345. There is a not unreasonable doubt held by many whether attempts to increase rubber production in Malaya either by new planting or by replanting with improved strains are wise in view of the preponderant place rubber already takes in the country's economy and of the uncertainty of its future. To help resolve these doubts, it is pertinent to remember that if no new planting or replanting takes place Malayan production must inevitably decline as the trees pass their prime—which so many of the smallholders' trees have already done—and that replanting or new planting now is essential to maintain production even at the present rate. Large areas cannot be planted or replanted overnight and for the next few years a policy of new and replanting can be undertaken without any great danger of there being over-production in the future. It will be time enough to decide in a few years, when the future of natural rubber may be clearer, whether to slacken or even accelerate the rate of planting and replanting.

346. To remove any further doubts that may remain concerning the advisability of rubber planting it is particularly interesting to note that the technique of hedge planting—new to Malaya—holds out the possibility of growing other crops in the same plantations as the rubber trees. There is still much to find out, but the adoption of this technique would loosen the smallholder from his subservience to rubber and rubber alone without breaking away from it altogether. He would indeed have "hedged" his economic position as he had "hedged" the rubber trees in his plantation.

347. The world's demand for vegetable oils has greatly exceeded the available supply since the war, and with increasing populations and a determined endeavour to improve the standard of living everywhere the

future for vegetable oil production is assured. Malaya is particularly fortunate in that soil and climate are suitable for the growth of two among the main oil producing plants—coconuts and oil palms. The latter is, incidentally, the most efficient producer of oil—as judged by yield of oil per acre—of any agricultural crop.

348. Coconuts, which supply not only the basic vegetable oil for the people of Malaya, but also the valuable copra which is exported, are a distinctive feature of the coast and of the inland kampong. The fact that coconut palms grow almost as a weed disguises the fact that there is immense scope for their improvement—both as regards the discovery of high yielding strains and improved methods of cultivation. Coconut palms have often been described as the "Consols of the East", but this does little justice to the great potentialities of the crop if treated, not as a weed, but as a cultivation which will pay big dividends if grown under up-to-date methods.

349. The preparation of good quality copra is not an easy matter and some form of artificial drying is required to prevent moulds. Here, particularly, is there need for some form of smallholders' association to provide the necessary drying kilns and for a marketing system which takes into consideration the quality of the product.

350. The oil palm industry in Malaya is entirely in the hands of estates and there is no smallholding cultivation. It is unfortunately true that in spite of efforts to popularize it neither the Malays nor the Chinese regard palm oil as a desirable constituent of their diet in spite of its undoubted nutritional value. The fact must, therefore, be accepted that the local demand for palm oil will remain negligible for very many years to come. It has been the custom to associate palm oil, and the nuts inside palm fruit—palm kernels—with West Africa, but the trade in these products is shifting to the East. One reason, which is decisive, is the fact that the particular variety of palm known as the Deli, thrives in the East and can produce up to two tons of oil per acre—a yield unheard of in West Africa. There is, therefore, every reason to regard oil palm cultivation in Malaya as one which has not only come to stay but which might be greatly expanded. For efficient production a considerable capital outlay is required not only to bring the fruit into the oil extraction plant but also for the extraction plant itself. Oil palms are therefore not ideal for the smallholder unless he sites his cultivation in close proximity to an oil extraction plant.

351. Before the war canned pineapples constituted the third most valuable Malayan export, some 2½ million cases being shipped annually. Since the war rehabilitation has been taking place and plans are afoot to reorganize the whole industry. Not only are strict rules to be enforced to ensure up-to-date methods in the canning factories, but the factory owners will have to guarantee that they themselves will cultivate an appreciable acreage of pines. It is particularly fortunate that pineapples thrive on properly drained deep peat coastal soils, because these soils have been found unsuited to other crops. Large areas of peat have already been earmarked for future extension of pineapple growing. At present the canneries are operated rather on estate lines, drawing part of the fruit from their own cultivations and part from smallholders. Expansion of the industry may well see smallholders' co-operative societies owning their own canneries.

352. The highlands of Malaya are precipitous and not suited for agriculture, but here and there limited areas occur where upland tea can be grown. Advantage has been taken of this and a number of estates have been producing an excellent quality tea both for local consumption and

export. Expansion cannot be great if only for the fact that land of suitable topography is strictly limited. But apart altogether from expansion, the upland tea industry will have its work cut out to maintain present production. Blister blight of tea has recently found its way into Malaya and is rapidly spreading through the upland estates. Whether or not this disease will seriously curtail production remains to be seen, but it is quite certain that endeavours to control the disease will increase the costs of production. The industry is also faced with a shortage of labour.

353. Lowland tea, though in general producing a poorer quality product, is unlikely to suffer from Blister blight. For this reason and for the fact that there are large areas of lowlands yet to be utilized the prospects of lowland tea are brighter. Pruning the bushes, plucking and processing the leaves call for considerable skill and long hours of work and it is doubtful if the crop will be attractive to smallholders.

354. This Section would not be complete without some mention of cocoa, though this is not an established industry in Malaya. In other parts of the world the crop has proved ideal for smallholders, but it is one which will thrive only on the best soils and under specific climatic conditions. Policy for the next five years or so should aim at the introduction and multiplication of the best quality planting material and the acquisition of the maximum amount of information about its behaviour in the different soils and climatic zones of Malaya. There is at present a world shortage of cocoa and this shortage is considered likely to persist for many years to come.

(iv)—Timber.

355. Seventy-five per cent. of the total area of the country is covered by forests and much of that area is known to contain valuable timber. Some of this can never be utilized as the removal of the forest cover, particularly on steep hill sides, would lead to large scale erosion with all its attendant evils. The area of productive and workable forest is, however, large and is capable of producing vastly increased quantities of timber and other forest produce. Timber is already an important export of the country and production is increasing annually.

356. No records exist to show exactly when the first timber was taken out of Malaya, but at the turn of the century when the Forest Department was organised on much the same lines as to-day export to China from East Coast ports was well established. At that time *chengal* (Balanocarpus heimii) was the timber primarily concerned and indeed that demand persisted right up to the outbreak of World War II, although other species, particularly *meranti* (Shorea spp.) had been readily accepted on the Shanghai market for some years previously. It has to be explained here that all *meranti* types and a great many other species of no botanical connection with *meranti* but giving a roughly similar type of timber are lumped together under the Singapore trade name of "Seriah". This timber together with *kapur* (Dryobalanops aromatica) has been exported to Jeddah and Aden for upwards of half a century. There has also, for many years past, been a steady trade with India and what is now Pakistan, the chief importing centres being Bombay, Calcutta and Karachi.

357. Of more recent origin is the trade with Mauritius which pre-war took between two and three thousand tons (of 50 cubic feet) a year. This market required something better than ordinary unseasoned, run-of-the-mill material and in an effort to meet this demand the Singapore mills evolved what was known as "Mauritius" grade. There were no very definite rules and the seasoning was usually rather sketchy, but the timber that emerged was a distinct cut above that supplied to the local market.

Mention is made of this because it represents the first effort on the part of the local timber industry to meet the demands of overseas buyers. The effects were far reaching. Local consumers saw the material prepared for Mauritius and wanted to know why they could not be supplied with a similar grade timber. They were told they could—at a price. And so grew up a superior local grade known in the trade as "Singapore No. 1".

358. Thus when the Forest Department first interested itself in the possibilities of departmentally sponsored exports to the United Kingdom in 1931 there already existed a flourishing local market with a wide field of exports ranging from China to Arabia. It must not be supposed that no Malayan timber had ever reached Britian before the trial shipments of 1931. *Chengal* is said to have been on sale in Liverpool in the nineties and *kapur* was certainly imported in the early twenties. These shipments however failed to arouse much interest; *chengal* was much too hard and heavy for the United Kingdom market and most of the *kapur* was quite ungraded and full of pin holes. In 1931, as a result of Empire Preference, the "Buy British" movement and the general economic situation at the time, the interest in Colonial timbers increased and certain enterprising firms approached the Malayan Forest Department with a view to obtaining Government sponsored exports. During the early thirties several trial shipments of *meranti*, *kapur*, *keruing* (Dipterocarpus spp.) and *jelutong* (Dyera spp.) were made under the personal supervision of the Forest Engineer, and were extremely well received. Repeat orders were given and by 1934 the trade, although as yet of little commercial importance, was so well established and the potentialities for expansion so great that a special officer (the Forest Officer, Singapore) was detailed to look after the work. The trade grew in volume but difficulties were quickly encountered. *Meranti* was in special demand, but for practical purposes in prime grade only. To obtain one ton of prime *meranti* some seven to ten tons had to be cut, even after initial selection of the logs.

359. The principal defect in *meranti* is the incidence of "pin" and "shot" holes caused by the activities of Ambrosia boring beetles in the green timber generally in the freshly felled tree. A considerable amount of time and money has been spent by officers of the Forest Research Institute, Kepong, in an endeavour to discover some means of preventing the depredations of the pest but only recently with some measure of success. The beetles, however, cannot live in seasoned timber and the presence of pin and shot holes in *meranti* timber arriving in the United Kingdom is therefore *not* indicative of *lyctus*. Importers of Malayan timber knew this well enough but, they said, they found it difficult to persuade their buyers that such was the case and cited this as one of the chief factors limiting the demand for wormy grades. "Prime Wormy", as it was graded under the Empire Grading Rules, was freely accepted but it proved a very narrow grade, the bulk of the outturn being no better than "Second Prime Wormy". With this material unsaleable in the United Kingdom the mills were forced to dispose of it locally but at a considerable loss as the local custom of the trade is scant sawn whereas all lumber for the United Kingdom had to be full cut.

360. Although the demand for prime *meranti* continued the volume exported remained small, but the trade in *keruing* developed rapidly and before the war had reached considerable proportions. *Keruing* is not nearly so subject to insect attack and large dimension stock can be shipped almost green. Smaller sizes require some seasoning but generally speaking the timber (of which there are some twenty different forms in Malaya) is very easy to handle. A notable *keruing* export line was telegraph arms of which shipments of considerable size were being made right up to the

outbreak of the Japanese War. *Kapur* is in great demand locally and has always sold at prices which usually make cutting for export unattractive. *Jelutong* is a timber with specialized uses (particularly pattern making) and is in short supply locally. As the tree is so valuable for its latex, which forms the basis of chewing gum (or did so until synthetic substitutes were developed), its export as timber has always been very limited.

361. By 1940 graded timber exports, mainly to the United Kingdom, had increased to some 2,500 tons a year with *keruing* by far the most important export species. Prime *meranti* was in firm demand but sales of lower grades were still negligible. Then came the Japanese occupation and Malaya disappeared from the map for nearly four years.

362. After the liberation the timber industry revived remarkably quickly and in 1946 production, in terms of sawn timber, amounted to about 190,000 tons. Nearly all this was used locally as the process of rehabilitation after four years complete lack of maintenance and neglect required vast quantities of timber. Add to that the timber demands of the military for the housing of a garrison of much larger proportions than was ever envisaged pre-war and it will be seen that Malayan sawmillers did not lack for markets. This process went on throughout 1946 and 1947 but during that period exports of run-of-the-mill material to eastern markets, principally Hongkong, China and Arabia were restarted. In 1948, when the local demand had begun to slacken, graded exports to the United Kingdom and South Africa were resumed and, for the first time, shipments were made to Australia. As was the case before the war, grading was carried out under the Empire Grading Rules—a set of rules drawn up in 1933 by a special Sub-committee of the Imperial Institute Advisory Committee on Timbers. It soon became evident that these rules were not altogether suited to post-war trading conditions. Their application to some of the "new" Malayan timbers which had now become acceptable in the United Kingdom revealed an undesirable rigidity, while the whole format of the rules proved unsuitable for purchases by the Timber Control Department of the Board of Trade. Early in 1949, therefore, the Forest Department prepared a new set of rules and these, in draft form, were circulated to all sections of the timber trade, both in Malaya and overseas, for comment and criticism. The response was helpful and encouraging and many alterations and amendments in the original draft were made in the light of the comments received. The new rules, known as the Malayan Grading Rules (Export) for Rough Sawn Timber, were published in July, 1949, and proved an immediate success. There is no doubt that they have put Malaya's timber export trade on a much firmer basis. Saw-millers have welcomed them because of their flexibility and because they now feel that the lower grades, which must inevitably make up a large proportion of their outturn, are at least catered for. Exporters like them for much the same reasons and buyers at least know, without much possibility of doubt, what they are likely to get under any given grade and can adjust their purchases to fit end-uses and so please their customers. Partly as a result of the new rules graded exports in 1949 reached the record total of 22,407 tons of which no fewer than 17,011 tons went to the United Kingdom while exports to Australia and South Africa totalled 2,717 and 2,059 tons respectively. At the same time exports of ungraded timber to eastern markets also showed a substantial increase, the chief markets being Hongkong, Arabia, India, Pakistan, Indonesia, Aden, Mauritius and Iraq. Shipments to Shanghai, formerly a most important market, ceased in April, 1949, after the Communist occupation. Total shipments of sawn timber for the year amounted to 68,752 tons with an f.o.b. value of nearly nine million dollars. Present indications are that the volume of the export trade for both graded and ungraded timber in 1950 will exceed the 1949 totals.

363. The reasons for the present export boom are not far to seek. So far as "high class" graded timber is concerned the introduction of the new rules, as already mentioned, has undoubtedly had a beneficial effect. But probably the most important reason for the popularity of Malayan timbers is that the United Kingdom (and other Commonwealth countries) has, for economic reasons, been forced to curtail drastically her buying in "dollar" areas and is looking to soft currency areas, preferably within the Commonwealth, to fill the gap. There is thus a wonderful opportunity for Malaya, with her vast forest wealth, to expand her export trade—an opportunity which the timber industry has not been slow to grasp. There is evidence to show that Malayan timbers will continue to be in demand on their own merits even when the dollar situation improves. The increase in exports to eastern overseas markets is partly due to a slackening of the local demand, which, in turn, is largely due to the emergency, and partly to the fact that Malayan timbers, for one reason or another, are in increased demand in most of the other old established markets. The heavy demand from Arabia, for instance, is said to be due to large house-building programmes in Jeddah and Mecca coupled with a reduction in the timber import duty. Another reason for the pronounced increase in timber exports is that local sawmillers have become far more export conscious than they were before the war and many new plants have been erected that must depend on the export trade to a very appreciable extent to dispose of their outturn. At the end of 1949 no fewer than 203 sawmills of all sizes were in operation as compared with only 78 in 1939. Sawmill operatives now number over 4,000 and, including loggers and transport workers, approximately 25,000 persons are employed in the timber industry. The present capacity of all mills, working full time, is probably in the region of 400,000 tons but actual production in 1949 was approximately 282,000 tons of which about 20 per cent. was hand sawn. There is therefore considerable scope for expansion even within the limitations of existing plant.

364. The history of the Malayan timber trade up to the present time has been given at some length, so that the principles of development policy for the industry which can now be formulated may be seen in proper perspective. Before proceeding to this part of the subject it should be made clear—if it is not already obvious from what has gone before—that the interests of Singapore and of the Federation in the timber trade are inextricably linked, and planning can only proceed on the assumption that the existing links will be still further strengthened in the future.

365. One of the most important responsibilities of any Government is the *conservation of its forest resources*. Suitable areas of forest must be reserved and dedicated to the production of timber and other forest produce in perpetuity. In Malaya this process of reservation has been going on for fifty years and is now virtually complete. Forest reserves, constituted under the various Forest Enactments, now cover about 22 per cent. of the total area of the country and represent an enormous reservoir of potential forest wealth. The management of this vast forest estate is the responsibility of the Forest Department and it is axiomatic that in Forest Reserves there must be no exploitation without re-afforestation. This principle does not, of course, apply to the State land forests (as opposed to Reserves) where the forest exploited is to be ultimately put to other uses, e.g., agriculture or mining. Management of Reserves is effected through Working Plans, i.e., the written plan laying down the future management of each individual forest.

366. These Working Plans indicate, amongst other things, what *extraction facilities* are to be used and the routes to be followed. In some cases these are constructed by the Department itself, in the form of forest

roads, but the permit or concession holder is normally made responsible for at least the development of the subsidiary facilities. Good roads (more or less "all-weather") and tram-ways are now much more common than they were 20 years ago. Short haul extraction to main lines of communication is however still largely done by the "panglong" system employing man-power. This is wasteful of labour and expensive. Tractor extraction is the answer in many cases, any good small crawler-mounted diesel tractor being suitable machine for the purpose. There is considerable scope here for development by private enterprise.

367. It will be clear from the introductory account that one of the principal factors determining the ability of Malayan timbers to compete in the foreign market is that of cost, and this factor is likely to become more important if and when the artificial protection at present afforded by currency restrictions is removed. Improvement in *milling methods* is one of the ways of effecting this saving, and the replacement of the old circular saw outfits by band mills would do so to a very considerable extent.

368. The history of the development of an overseas trade in timber has been one of the gradual adopting of a more and more comprehensive system of *grading*. The timber trade is by no means unique in this respect. The general tendency all over the world is to demand a more uniform, more specialized product than was accepted formerly, and this applied to raw materials produced in tropical countries no less than to articles produced elsewhere. It can be confidently predicted that grading will in course of time come to be demanded both locally and in those countries which at present are satisfied with run of the mill material, while those markets which already require certain standards are likely to become even more discriminating in the future.

369. The next important development is that of *marketing*. The organization of exports from timber producing colonies to specialized markets in the principal buying countries (the United Kingdom, Australia, South Africa, India, Pakistan, Arabia, Hongkong, Mauritius) is not a matter that can be left to the chance enterprise of private agencies, supplemented by casual contacts made by senior officers of the Forest Department when on leave. Or rather it would be more truthful to say that if it is so left the expansion of the trade will be much slower than it could be, and many opportunities for new markets will be lost. The "commercial traveller" selected for such liaison duties must obviously be a person with an intimate knowledge, not only of buyers' requirements but also of the problems of the producer and exporter; he should also be a forester or at any rate one who understands and appreciates the forester's viewpoint. The task of *creating a marketing-cum-liaison organization* of this kind is one of the most urgent problems that the timber industry has to face and it is not made any easier by the fact that the industry is at present insufficiently organized internally to be able to undertake such a venture. Until the industry has itself been able to create the necessary organization, the post of marketing and liaison officer might be a Government appointment. It is calculated that the whole organization could be paid for by the levy of a cess of only one cent per cubic foot (50 cents per ton) on all timber exported. The organization could represent the interests of Singapore as well as the Federation of Malaya and could, if required, be extended to cover the Bornean territories in addition.

370. A further line of development is that of *manufacturing industries*. Reference has already been made to the possibilities of paper, pulp and fibreboard manufacture in paragraph 215 of Chapter II and although

Government can give a lead here in the field of laboratory research and the erection of pilot plants, full commercial development is essentially a matter for private enterprise.

371. There should also be mentioned the possibilities of further development in the field of *minor forest produce* which collectively are important. The chief of these products are Damar, Gutta Percha, Rotans and Jelutong and the problems are mainly those of marketing—which is a further reason for the institution of a service on the lines mentioned in paragraph 369.

372. Finally an allusion should be made to the important contributions which *research* may have to make to the development of the trade in Malayan timbers. A typical case of this has been mentioned in connection with the difficulties of producing a prime grade of *meranti*. In the present state of the timber industry Government is the only agency capable of undertaking research, but as in most other spheres far more knowledge is available than has been applied. If the industry were better organized internally there can be little doubt that the benefits of this knowledge could be distributed far more widely than they are at present.

(v).—Minerals.

373. Malaya is singularly well endowed with mineral resources. It is the largest tin producing country in the world and in addition contains deposits of bauxite, coal, gold, iron ore, tungsten ores, manganese ores, china clay and other minerals. The scale and importance of the mining of these deposits is demonstrated by the fact that in 1949, 55,448 tons of tin valued at $264 million were exported. The revenue obtained from this metal, in the form of export duty alone, amounted to $38 million. There are over 650 mines in operation in the Federation and over 52,000 persons are employed in the industry. Mining, therefore, must necessarily occupy a principal place in plans for the economic development of the country. In formulating these plans, the fundamental difference between mining and other forms of productive activity such as agriculture, animal husbandry and forestry must be appreciated. Mining consists essentially of the removal of natural resources, which, once removed, cannot be replaced. The process is analogous to the realisation of a capital asset, and this fact must strongly influence mining policy.

374. The responsibility for the efficient development of the mineral resources rests jointly with the Government and private mining enterprises. The presence of valuable mineral deposits places a responsibility on Government to permit their orderly development, while the efficiency of the mining processes is primarily the concern of the mine operators. In this connection it may be borne in mind that the interests of the commercial operators are not necessarily the same as those of the country, even though the economic development of the mineral resources is the aim of both. It is thus the duty of Government, while assisting in the attainment of this aim, at the same time to retain adequate control in order to ensure that mining enterprises are carried out in the general interests of the country.

375. In Malaya, where mining development has already been encouraged on a large scale and the industry is highly organised, formulation of a mining policy must necessarily be done against the background of existing conditions. For this reason the past history of mining will be reviewed briefly.

376. The working of tin-ore deposits is recorded as far back as the 9th century, and continued thereafter with little interruption. With the discovery of the tin fields at Larut and Kuala Lumpur during the 18th and

the 19th centuries, a large-scale immigration of Chinese tin miners took place until, by the latter half of the 19th century, some 80,000 Chinese were employed in mining. Subsequent rivalry amongst these people led to British intervention in 1873. During the period referred to, the annual production of tin-ore increased from 9,000 pikuls to about 200,000 pikuls. In these early years mining was carried out by hand labour methods only. In 1877 the first steam engine and centrifugal pump were introduced. The first European mining company was formed in 1882, and from then onwards the methods originated and developed by the Chinese miners were modified by the use of power and machinery. The most marked advances in mining methods were made from 1912 onwards by the introduction of dredges. The first tin-dredge was built in that year, but owing to difficulties in obtaining materials during the 1914-1918 war, no great advances were made until after the war. Then the number of mines and dredges increased rapidly until in 1941, 126 dredges were working, being reconstructed or being erected. All the time continuous progress was being made by the introduction of large deep digging dredges, electrical plant, high-speed oil engines and mechanical excavators in the field of mine operation and by classifiers, jigs, etc., in the field of ore recovery. An underground mine commenced working tin lodes in Pahang in 1906 and since then has continued to be one of the country's largest individual tin producers.

377. While the emphasis on mining in Malaya has been on the production of tin-ore, mining of other minerals has been important. The Enggor coal field produced 28,500 tons of coal between 1925 and 1928. The Batu Arang deposit has been mined since about 1915 and approximately 12 million tons had been produced up to the end of 1949.

378. Gold has been won in several localities in an area forming part of western Pahang and eastern Negri Sembilan. A number of deposits at Raub in Pahang have been mined since 1889. The total production to the end of 1949 amounted to 778,949 ozs. of gold. Other deposits have been worked on a small scale. Gold has also been recovered from alluvial deposits in the Bidor area of Perak and in Selangor.

379. Iron deposits have been worked since about 1921 in Johore, Trengganu, Kelantan and Perak. The maximum annual production of nearly 2 million tons was attained in 1939. Operations are now continuing on a large scale at Bukit Besi in Trengganu.

380. Small quantities of manganese ores have been exported since 1925 and there has been intermittent production of scheelite since 1909. Wolframite has been mined since 1913, but the production has never been great. Ilmenite has been recovered as a by-product from tin-ore concentrates for many years and monazite, a radio-active mineral containing thoria, has been recovered in the recent past. Bauxite, an ore of aluminium, has been mined on a relatively large scale since 1936. Tantalite-columbite minerals, ores of copper and lead, and china clay have been mined on a small scale.

381. The foregoing indicates the importance of mining, and shows that many factors have to be considered in framing a mining policy. Planning is not merely the determination of mineral resources. Though this work is the logical first step in an undeveloped country, in Malaya, with its highly organised mineral industry and its established position as a world tin producer, this work must be accompanied by investigations in the fields of land utilisation, mining practices and processes, and the economics of mining, if planning is to be effective.

382. The *determination of the mineral resources* is carried out by commercial mining interests and Government agencies. Mines must have opportunities of acquiring ore reserves to replace those being continually worked-out. They now make a major contribution to the revenue of the country, but if this state of affairs is to continue, the search for mineral deposits must go on. Mining enterprises can undertake this work, and Government can give assistance through the provision of basic geological information by the Geological Survey and advice on the availability of areas for mining and other technical matters by the Mines Department. Complete records must be kept and made available. In this connection, it may be noted that libraries of prospecting results are open for inspection in both the Geological and Mines Departments.

383. In Malaya, where mineral deposits often occur in areas suitable for other development projects, *adequate opportunities for prospecting* are essential. Safeguards exist in the fact that permits or licences to prospect are issued by Government. As a further precaution, in particular areas it may be necessary for Government to carry out prospecting itself [*see* paragraphs 218 (iii) and 221 (i) above]. Orderly development of the country can be achieved only if the extent of the mineral resources has been determined. Otherwise, valuable mineral deposits are liable to be blanketed by other schemes and with the increasing scarcity of minerals in the future, it is likely that these costly schemes directed to other purposes will eventually have to be abandoned. On the other hand, once the occurrence and the extent of the ore deposits are known, special problems of land utilisation arise. The relative claims of mining, agriculture and forestry have to be judged. In this connection, the peculiar characteristics of the mineral occurrences should be taken into account and it should be clearly appreciated that the value of any deposit can be estimated only after detailed prospecting has been done. Again, mineral deposits are scarce. The area alienated for mining in the Federation represents only 1.68 per cent. of the total area of the country, but the mining of this relatively small area provides a major share of its revenue. Thus, the occurrence of valuable ore deposits imposes special responsibilities on Government to ensure that they make their greatest possible contribution to the wealth of the country. Regional planning, followed by detailed planning for the working of particular areas, is the only way of ensuring that there is no waste of irreplaceable mineral resources, and so of promoting the orderly development of the country as a whole, with particular reference to its mineral wealth.

384. In Malaya, where land is alienated for mining on terms and conditions in accordance with varying mining enactments, there must be *close co-ordination of overall mining, land and taxation policies*. The terms of premia and rent should be such as to compensate for the mineral rights and the services obtained, having regard both to the general taxation levels and policy, and to the fact that the minerals to be won constitute a capital asset. The conditions imposed should be possible to fulfil. Mining laws provide for the implementation of the principles of conservation of land and minerals. The land alienation policy should permit the operation of mining units of economic size, and the period of the leases should encourage the long-term planning of comprehensive mining schemes.

385. Mining on the leases is carried out in accordance with schemes submitted to, and approved by, the Mines Department. All schemes are examined on the basis of safety, efficiency of mineral extraction, reconditioning of worked-out land, and the protection of other natural resources. In this way, the Government *maintains minimum standards* in the variety of conditions relating to mining, and this of course it must continue to do.

386. Minimum standards of efficiency are, however, not enough. In mine-operation, ore-extraction, treatment and recovery, efficiencies are determined largely by cost considerations, and cost depends to a great extent on managerial skill. Managements or their agents should be required to have minimum technical qualifications and a knowledge of mining regulations. *Efficiencies of mining processess should be kept under constant review* so that changes in conditions can be met, and the standard constantly improved. The interests of Government dictate that in the choice of alternative mining methods, the one giving the maximum recovery should wherever possible be adopted. It is of course recognized that on many occasions the use of such a method would be uneconomic, having regard to the level of prices. In such cases it could not be insisted upon. It is not possible to give precise details covering all cases, as ore-deposits vary greatly in character, and the most efficient recovery processes vary with different deposits, and even within the same deposit, but increased mechanisation and the consolidation of smallholdings would all be likely to lead to increased operating efficiencies. There are additional reasons why it is necessary to ensure that otherwise recoverable ore is not left in the ground or lost in the tailings. If tin-ore remains in the ground in workable quantities, subsequent development of the land after it has been mined will be hindered or prevented, the land remaining idle in the expectation that one day it will be worked over again. The mining industry includes several hundred small operators, who separately are not in a position to undertake the investigations and the development of improved techniques. The work must accordingly be done by Government agencies, and the development plan of the Mines Department is designed to meet this need [*see* paragraph 221 (ii) above].

387. Future mining development depends upon the ability of the industry to work progressively lower grade ground. Even if the most efficient methods are used, and taxation policy is reasonable, a low tin-price will make it unprofitable to work such land. Wide fluctuations in price will have the same effect. It follows that *a sound production policy, coupled with efficient marketing arrangements*, are of paramount importance, since the uncontrolled operation of the forces of supply and demand would spell ruin to a large part of the Malayan tin industry, with consequent effects on the world supplies which would be most serious. The problem is not one which is confined to Malaya, nor is it a new one. During the period 1931 to 1946, production of tin-ore was controlled in accordance with International Restriction Schemes. Production was adjusted to consumption and reasonable price levels were thus maintained. More recently, the International Tin Study Group has been engaged in calculating the trend of world production and consumption of tin, and reviewing the prospects of the tin industry in the future. As a result of their enquiries a proposal has been made by the Group to convene an International Commodity Conference of the United Nations Organisation, and this proposal is at present under consideration. The aim is to meet the needs of producers and consumers alike and to ensure the stability of the industry as a whole. It is not one which could be achieved by Malaya or by any other country working independently.

(vi).—Secondary Industries.

388. It is a common complaint of all territories which are principally engaged in producing raw materials that, in periods of economic depression, the value of their produce diminishes very much faster and further than does the cost of the goods they import. They therefore naturally turn their attention to the possibility of establishing manufacturing industries of

their own, and such a possibility appears all the more attractive when it is observed that the more highly industrialized a country becomes, the higher a standard of living it seems to enjoy.

389. So far as the Federation of Malaya is concerned, there are several very good reasons why it has not been found possible to establish heavy industries in its territory, though until the geological survey of the country has been completed, this possibility cannot be entirely ruled out. Light industries, however, are in a different position. These may be conveniently dealt with under three heads:

(*a*) processing industries to prepare agricultural and mineral produce for export or where appropriate, for consumption within the country;

(*b*) light manufacturing industries to make for the Malayan market goods which would otherwise have to be imported from overseas;

(*c*) cottage industries.

390. The processing industries are of course well established in Malaya, some of them, such as the tin smelting industry, being on a very considerable scale. All of the main crops undergo a greater or lesser amount of "processing" before they leave the country, so that some of them, such as pineapples, are ready for immediate consumption, while in other cases the manufacture is only carried to a certain stage and has to be completed at the further destination. However, the degree of processing often varies greatly even where the same product is concerned, tending to be carried furthest when the organization of production is most efficient, and least far where such organization is casual and ineffective. On the one hand there are the large units of production, such as groups of estates, which can be depended upon to set up the organization for as much processing of their produce as is required. On the other hand are the small independent producers who do little processing at all on their own account. The latter can, however, combine together for this purpose if they themselves are ready, and receive encouragement to do so. Such combination is greatly in the national interest, and the first and most obvious policy in relation to secondary industries will be to encourage the *association of small producers for improved processing of their output*. Some progress has been made in this direction, but not much; the milling of rice and rubber, and the kilning of copra offer the best opportunities. There are of course various subsidiary reasons in support of this policy, which in their own way are as important as that already given. Associations have great educational value to those who participate in them, and economic advantage also, as the producer takes his share of the processing profits. Finally, the product is of better quality, there is less waste, and in course of time there is an improvement in the unprocessed article itself.

391. Another point can be made about processing factories, whether privately or co-operatively owned, which is that it is as much in the national as the owner's interest that they should be efficient. In Malaya there is considerable scope for *improving factory organization*. Lay-outs are often ill-planned, premises unsuitable, methods of operation wasteful of labour. Little thought is given to consumers' preferences, and small economies are often practised which end by damaging the reputation of the goods produced. Knowledge of cost accounting methods is limited, and profits earned are frequently due more to good luck than to good management. Efficiency is, ultimately, the only qualification for survival, both as between competitors and as between one country and another.

392. Coming now to the light manufacturing industries, the need for planning is much more evident. The circumstances at least are auspicious, for there already exist a variety of small-scale industries, e.g., boat building, furniture making, brick, tile and pottery manufacture, pewter and silver works, etc. Some of these, such as the foundries, ice and match factories are of a fair size, and employ a considerable number of workpeople. It is clear therefore that the population of Malaya is well adapted to such forms of industrial activity. What other factors are there to influence a manufacturer in deciding whether to set up a business in this country? There are of course the considerations whether he can buy his materials, and sell his product, and obtain the necessary capital. But besides these, the question of a site is also important. His factory must be well situated in regard to roads and railways, it must be near a town or some other reserve of labour, it must be well served with water and power, and the rents must not be excessive. A moment's reflection will show that such sites are far from easy to find. They can be made, however, and the *provision of industrial estates* has in many countries become a recognized function of local authorities or semi-public corporations, which undertake the construction of access roads, supply of public utilities, etc., and then rent sites to individual industries at a profit. It is highly probable that if light industries are to develop satisfactorily in Malaya, planning of this sort will be necessary.

393. Finally, there are excellent reasons for *encouraging cottage industries* and, with the pre-war weaving industry in Java as an example of what can be done on these lines, grounds for believing that much more could be done in Malaya than has been attempted. The excellent reasons are these, first that as long as such industries exist there will survive also the appreciation of and skill in fine craftsmanship which is one of the most precious attributes that a nation can possess, and second that they enable the individual to maintain his productivity—on which, as has been repeated "ad nauseam", his hopes of improving his standard of living depend—during the slack season of the farming or fishing year. Organization is, as usual, the difficulty, but if the effort can be made, the reward is exceedingly worth while.

(vii).—Marketing and Distribution.

394. Much has already been said about Marketing in previous Sections (ii, iii, iv and vi), and this can be briefly summarized. Beginning—where discussions on this subject should always begin—at the customer's or consumer's end, it has been seen that it is not enough to present him with a product which it is merely hoped he will like but that, on the contrary, his tastes have to be carefully studied, and may often need to be stimulated by judicious advertising. It goes without saying that the product itself must be the best obtainable at the price at which it is offered, but beside that it must be dependable in quality and therefore distinguishable in some way, either by a well known mark, or by conforming to an accepted standard. The wider his field of choice, the greater will be the importance that the consumer gives to such matters which, when the product is in short supply, may tend to be overlooked as unimportant. Finally, in spite of all the efforts of the seller, the buyer may transfer his custom elsewhere, in which case the seller will need to find other markets, which he will do the more easily if he has spent some time and trouble in looking for them in advance.

395. These facts are both simple and obvious, and yet they contain some wide and deep implications for the great producing industries of Malaya which have by no means been perfectly grasped. The marketing activities described above are a costly affair, and involve far more attention

[From a drawing by Patricia Morley.

Portrait of a Straits-born Chinese woman.

and expense than the average member component of an industry can afford, and there is therefore a very good case for the pooling of resources to be administered by *industrial associations*. There are many examples of such associations already existing in Malaya and doing valuable work, but there is room for more of them, and the scope of their activities could in many cases be much wider than it is. It is not possible to dogmatize regarding what the objects of these associations should be; they will necessarily vary from one industry to another. But it may be stated categorically that in every industry there will be some purposes which can be accomplished far more effectively and economically if such organizations exist, and other purposes which in their absence cannot be carried out at all.

396. There is one other fundamental principle which must guide industrial policy, and that is the principle of constant search for ways and means of *lowering of costs of production*. In Section X of this Chapter (paragraph 432) the point will be made that imports are a bigger factor in determining the cost of living—and hence the cost of production—in Malaya than in many other countries. Up to the point where imported goods have been landed and passed through the Customs sheds this cost is more or less predetermined. But that is only a part of the total cost, the remainder consisting of the cost of distribution between the port of entry and the point of delivery to the consumer. Here there is room for wide variations, and such variations do indeed occur in Malaya to an abnormal extent. The reasons for this are obscure but seem to be due at least in part to excessive and expensive forms of handling. If this is so, several ways of reducing this cost will suggest themselves.

397. The capacity for organization which is required in order to take full advantage of external markets is no less necessary for exploiting domestic markets, though for somewhat different reasons. Whether it is a case of fruit or fish, eggs or vegetables, the internal economy of Malaya exhibits the same symptoms, of glut followed by shortage, of wide fluctuations in the price range and of a gross disparity between the price paid by the consumer and that paid to the producer. There is no lack of Malayan fruits of all kinds, and yet the urban dweller is never able to form the habit of eating them, the supply being so irregular. Imported fruit on the other hand is on sale at all times of the year. Malaya has a long coast line with a fairly well-developed road transport system. It should therefore be a country in which good fish at a reasonable price is available to all—instead of which the fisherman is among the lowest rewarded members of the community, and fish is by no means cheap. Eggs and to a lesser extent vegetables can easily be stored so as to retain their freshness, and yet any temporary shortage in the local supply is immediately reflected in an advance in price. In this connection it may be mentioned that in a number of countries whose peasant economy is similar to that which exists in parts of Malaya it has been found profitable to set up rural organizations for *produce inspection and marketing*. Such organizations fulfil a triple purpose. In the first place they are concerned with improving the quality of the standard export crops already being produced in some quantity by the small-holder. Copra and rubber would be examples of such crops in Malaya. In the second place they are active in stimulating the production of minor crops, which in existing circumstances are relatively neglected owing to the absence of any organized demand. Cashew nuts and areca nuts are local examples of this second type. Thirdly—and this point is most relevant—by encouraging regularity of supply they make it possible for there to be a steady demand.

398. Without a survey of the system of distribution of goods in Malaya it is impossible even to venture a guess to what extent the present defects in the marketing and distribution systems of the country add to the price of goods and hence to the cost of living. If conditions permit, it may be possible to make a study of the system in so far as the fish-trade is concerned, and it would certainly be desirable to make similar enquiries about a number of other items of general consumption. But even without such enquiries it is clear that there exists in this field an immense opportunity for co-operative *associations of all kinds*. The producers are mainly small men with no financial resources, and no opportunities of obtaining credit. On the other hand the equipment required for successful marketing ventures, e.g., lorries, refrigeration plants, etc., require at least a moderate amount of capital. The thing has been done in many other countries, and there is no reason why it should not be done in Malaya also.

(viii).—Transport and Communications.

399. Good communications are of special economic importance owing to the large volume of internal and external trade. The availability of transport and its cost are a considerable factor in all major economic activities of the country. Government is concerned to ensure that an adequate, cheap, efficient, safe and stable system of transport is available. In certain cases, such as the railway, the airfields and the ports, there is a natural advantage in monopoly. In the sphere of road transport, shipping and civil air lines Government is concerned to provide facilities, to safeguard the lives and material interests of the public and to ensure that the transport system as a whole is economic and is used to its best advantage.

400. In almost all countries which have a developed transport system the need for an enforced system of co-ordination between road and rail transport has arisen, but no fully satisfactory system has yet been evolved. The need is an unavoidable consequence of the different conditions of the two systems. In a railway, fixed or overhead costs form a very large proportion of total costs. The additional cost of actually running a train is small compared with the proportion of fixed costs which must be assigned to that journey. In order therefore to spread the incidence of fixed costs as widely as possible, a railway must attract the largest possible volume of traffic. The extended application of the internal combustion engine to road transport occurred almost three-quarters of a century after railway systems had been built up. During that long period of almost complete monopoly for railway transport, governments took steps to ensure that the monopoly was controlled in the interests of the public, whilst the railways, with the support of governments and of traders, and having regard to the need for maximum volumes of traffic, evolved a system of charging which provided rates varying principally with the values of the differing commodities. Instead of all traffic being charged at the uniform average rate per mile, the bulky, essential but low-valued raw materials were conveyed at rates considerably below the average rate per mile, and the balance was maintained by the more highly valued commodities being charged rates above the average. The growth and development of countries has been conditioned by the existence of this charging system which, by its very nature, depended upon the existence of monopoly conditions.

401. On the other hand, the rates charged for road haulage are either uniform for all types of goods or vary very little for different goods, and there is no legal obligation on the road haulier, as there is on the railway, to accept for conveyance all traffic offered.

402. Although the railway monopoly for inland transport has been destroyed by the development of road transport, the railway charging system, and other legislative controls over railway activities, have remained largely unchanged, so that if there is no enforced co-ordination of road and rail transport a difficult situation arises. The average road haulage rate is generally (as it is in the Federation) between the upper and lower limits of the categories of railway rates. If there were no co-ordination, road transport would attract to itself a considerable proportion of the traffic in commodities which bear higher railway rates than the road haulage charge, and would additionally necessitate the introduction by the railway of special reduced freight rates for such commodities as continued to be carried by rail. The railway, however, would then be left to transport all the low tariff freights, whilst its total freight tonnage would be reduced and, in consequence, the average incidence of costs increased.

403. The railway is not a less efficient, and is a less expensive form of transport than road haulage. In so far as a comparison is valid for two such different tariff systems, the overall average rate per ton-mile of the Malayan Railway is appreciably lower than the average rate charged by commercial road transport. But if the railway imposed on all its traffic the overall average rate, there would be severe economic repercussions because low valued but essential commodities now carried at low railway tariff rates would have to bear much higher charges (whether carried by railway or road transport).

404. The railway must be maintained. If the traffic carried by the railway were diverted to the roads, the Federation would have to meet an enormous bill for new and improved roads, for additional vehicles and for increased importation of petroleum products. Much of the present railway traffic would just cease to be carried, because it could not support higher freight rates, and would therefore die. Even so, strong justification would be needed for the adoption of a policy of subsidising an inherently efficient railway from public funds merely because imperfect competition prevented its being put to its best use. On the other hand, such a policy might be a less unwelcome alternative than a disruption of existing economy and a limitation of full development.

405. There is no certain or fully satisfactory solution to this problem Developed countries are capable of expending on transport a larger proportion of the national income than countries which are still being developed, and the efficient maintenance of a cheap transport system may be of such general public benefit that expenditure of public funds for the purpose may be justified. Having regard to conditions in the Federation, however, it is desirable to minimise such public expenditure, and to take appropriate steps to this end.

406. The incidence of taxation on the road transport industry is relevant in this connection. The basis of such taxation is twofold; the industry makes use of certain facilities, especially roads and bridges, and is reasonably required to make a full contribution towards Government expenditure, both capital and recurrent, on such facilities. Secondly, road transport in common with other industries, must by taxation bear an appropriate share of the cost of common public services provided for the whole community. But taxation of the road transport industry cannot provide a complete solution to the problem of imperfect competition. In most countries, including the Federation, an attempt has been made to solve it by reserving to the railway the carriage of all goods in those circumstances in which the railway has the greatest technical advantages over road transport. Consideration of the various factors, including the greater

flexibility of road transport in short hauls from door to door, indicates that the railway is best suited to provide the country with its long distance transport. As a result a system has been established in the Federation with the aim of *confining road transport to operation within territorial zones.* The boundaries of the zones have been drawn with due regard to the flow of goods in the areas and to the needs of the areas for transport.

407. To some extent this has the effect of *making the two systems of road and rail transport complementary,* in that lorries would engage in feeder and distribution services to and from main stations on the railway. The established interests of road hauliers who, for a considerable period, have held permits for long distance haulage, have so far been safeguarded, whilst due allowance must be made at all times for the special needs for conveyance of exceptionally perishable commodities such as fish. There is sound logic in such a system, but there is great difficulty in its complete adoption in view of the numbers of vehicles licensed in the Federation and the zones of operation which such vehicles have enjoyed for many years. It will be apparent that the system depends for its success upon adequate and efficient enforcement, a matter fraught with considerable difficulty.

408. The system in the Federation requires that the grant of a haulage permit is conditional on proof that there is a demand within the area for additional services which cannot satisfactorily be met by existing services, including railway services. So far, as is the case in the United Kingdom, a less rigid control is exercised over vehicles which are authorised to convey only the lorry owner's own goods than over vehicles which ply for hire. This is a matter in which there is a wide divergence of opinion ranging from the demand for complete freedom to the demand for as rigid a control as for vehicles which ply for hire. Until further experience has been gained as to the effect of the present practice on the efficient maintenance of an adequate public transport system, no change in policy as regards existing operators is contemplated.

409. Within the road transport industry itself it is necessary that *standards of safety and efficiency should be enforced.* It is also desirable to regulate the conditions of employment in the industry to safeguard the welfare and interests of employees who have not as yet achieved any appreciable trades union organisation and whose general working conditions contrast unfavourably with those of railway staff.

410. The life of a lorry or a bus as a first class vehicle is rarely more than five years. In order to provide satisfactory services, there must be adequate maintenance and where necessary vehicles in reserve must be readily available as substitutes in case of breakdowns. The true costs of an efficient transport enterprise therefore include considerable provision for depreciation and maintenance. It is possible in the short run to carry on the business without providing for these expenses, but such neglect must eventually appear in unsafe or unreliable vehicles which cannot constitute a satisfactory service to the public. Experience in the Federation and in many other countries establishes that if entry to the road transport industry, in either its haulage or passenger services, is unrestricted the general consequences are of the kind described above. The number of vehicles available provides so much excess capacity over demand that there is bitter competition to attract business. The less reputable firms reduce their maintenance and replacement provisions to below the safety level and by lowering their charges oblige other firms to do likewise. The users of these transport services are the ultimate losers.

411. To prevent the occurrence of such abuses, *some restriction must be imposed on entry into the industry*. It is not sufficient merely to inspect the vehicles when they are periodically relicensed; many of the malpractices cannot be prevented in this way. The policy must be to regulate capacity so that it does not greatly exceed demand. For this purpose the system of local zones for commercial hauliers described above is a convenient method of control.

412. Public service vehicles are regulated in a rather different way but on the *same principle of relating capacity to demand*. In the case of bus services, it has so far been found best to issue exclusive licences in respect of particular routes, to control the fares charged and to insist on minimum but continually higher standards of comfort and service for the travelling public.

413. Coastal and ocean shipping and civil air services have never raised problems requiring Government intervention to the extent that has been necessary in the case of road and rail transport. There are well established international standards of safety of ships and aircraft which must continue to be written into the local legislation of the Federation. The provision of facilities at airports and landing grounds has been dealt with in the Civil Aviation programme of the preceding Chapter. The major issues of port development and management raise many technical and economic problems on which a special report by an expert is about to be published.

414. Telephone, telegraph and postal services are also communications, but in a different sense of the word. The policy regarding the future development of these services is to be found in the appropriate sections of Part II of the preceding Chapter.

(ix).—Labour.

415. The productivity of Malaya will depend to an increasing extent upon the organization of labour. Where such organization is defective, the consequences are usually seen in strikes and lock-outs which hamper and retard productivity. The proper aim of policy in this matter should be prevention rather than cure and, in fact, continuous thought and effort are devoted to removing the causes of stoppages and ensuring that the worker becomes a willing partner in the promotion of industry.

416. Among the measures which are directed towards these ends are the *encouragement of Trade Unions, Whitley Councils and Works Committees and the provision, meanwhile, of legislation and machinery to ensure good living and working conditions*, fair wages, adequate methods of conciliation, negotiation and arbitration, the regulation of days and hours of work, and the protection of women and children in employment. An essential development of the future will be the clearer understanding by employer and worker of each other's point of view and their closer identification with the prosperity of the industry in which they are engaged, until, as has already happened in certain industries in other countries, the idea and practice of collective bargaining give place to those of collective participation. The initiative will rest with both employers and workers to create and maintain the mutual confidence that will be required to make this development a reality.

417. In a country like Malaya, climate, health and food are more than usually important factors in deciding the level of productivity that can be attained. A vital problem for the future, therefore, is the thorough *review and improvement of existing arrangements for medical and health services* on places of employment in the rural areas and in towns and villages. There is wide scope also for the inculcation, by employers and the workers' Trade Unions, of better ideas of hygiene and diet than are prevalent at the moment.

418. Approached from a different angle, the problem of productivity will give rise to considerations of the worker's well-being through the *assurance of financial security* in his old age. A contributory Provident Fund Scheme, developing in the course of time into a scheme of Old Age Pensions, would keep him steady in his employment and would enable him to support himself after his retirement and so lessen, to some extent, the enormous diversion of wages that now takes place, much of it away from this country.

419. There remains the question of ensuring that the labour which is available from time to time is used to the best advantage. This will include consideration of both existing and future needs. An essential development for this purpose would be the *establishment of a country-wide Employment Exchange Service* which would enable labour to be placed as quickly as possible in the most appropriate employment. Such a service would at the same time indicate the types of labour which were in short supply or the reverse and therefore the adjustments that had to be made in the country's best interests. Consideration will need to be given to plans for facilitating these adjustments, for the setting up of institutions where the necessary technical training can be given and for dealing with the danger of serious unemployment whose approach the Employment Exchange Service will reveal. Machinery will need to be devised for the movement of labour to the best economic advantage, for the utilisation of existing funds to achieve this purpose and for their replenishment in order to ensure its continued fulfilment.

420. During recent years the important influence which good supervision exerts on productive efficiency, has been increasingly recognised. There has arisen, in consequence, a lively interest in the status and training of the foreman, who fills the key position between higher management and operatives. Though adequate opportunities may exist, however, for supervisors to improve their technical knowledge it will often be found that little thought has been given to the question of *training in the skill of supervision*. There is immense scope in a country like Malaya for development in this direction by means of schemes such as that known as "Training Within Industry for Supervisors", which seeks to impart the skill of instruction, leadership and improvement of methods. It will necessitate a modification of attitude on the part of the supervisor, and the replacement of traditional habits by a methodical, objective and understanding technique: it will also require the constant personal interest of senior management, but the gain in productive efficiency will more than repay the effort demanded.

(x).—External Trade.

421. Trade with foreign countries is an essential part of the Malayan economy. The country could neither live without its imports nor pay its way without its exports. The turnover of external trade of the Federation and Singapore (separate statistics are not available) was equivalent to nearly $600 per head of the population in 1949.

422. The pattern of this trade is extremely complex. The greater part of it consists in importing goods for local consumption and in exporting local products to consuming countries or to distant world markets. But more than 40 per cent. of the trade of Singapore and the Federation together consists in importing in order to re-export under a system of entrepôt trade.

423. The geographical distribution of trade is widespread. For convenience it may be divided into local trade with other countries of the South East Asia region, and trade with more distant countries. In general

the former trade is complementary to the latter. Manufactured goods and certain foodstuffs are imported from distant parts of the world, a proportion is retained in Malaya and the remainder is re-exported to neighbouring countries. In the opposite direction there is a flow of raw materials, such as rubber, tin and copra, from Indonesia, Burma and Thailand to Malaya which supplemented by the considerable output of Malaya itself is exported to distant markets. There is besides a considerable volume of trade within the circuit of South East Asia, India and Japan; for example, the import of rice from Thailand and Burma is an entirely local trade.

424. The Malayan share in the world trade system is easier to define. Malaya imports the greater part of its requirements from the Sterling Area and Western Europe and exports a substantial part of its products to North America and other "hard currency" countries. It thus obtains American dollars which help to offset the import surplus of the Sterling Area in its trade with the Western Hemisphere.

425. It is no part of Government policy to undertake the detailed direction of the flow of a trade which is so vast and complex. The aim of policy is rather to obtain as clear a field as possible for the skill and enterprise of the private trader, and to intervene and control the trade only with certain definite objects in view. For example, the governments of many countries with which there is a large volume of Malayan trade have for various reasons subjected their commerce to close regulation and control; foreigners wishing to deal with them will consequently require the support of their own governments. Such support can often be given, but obviously it is only available on condition that any necessary rules are complied with, and to this end special regulations may have to be imposed.

426. Another necessity for Government intervention arises out of the special circumstances of the post-war world. Many essential commodities have been in short supply and the quantities obtainable by the Federation have been insufficient to meet the full demand. In order to participate in international quota arrangements, which are made between governments, it has been necessary to institute Government monopolies of such commodities as rice, sugar and flour. The end of the era of acute scarcity is in sight and it should soon be possible for Government to withdraw from this trade in favour of commercial importers. Where, however, the government of the exporting country still retains an export monopoly, or the governments of other importing countries continue to compete for the available supplies the Government of the Federation may be obliged to retain its role of sole importer. But as soon as a real excess of supply over demand appears the complete abandonment of Government import arrangements should be possible.

427. A post-war difficulty which will persist much longer is due to the lack of balance of trade between the Sterling Area and America. The Federation of Malaya as a member of the Sterling Area must conform to its policy of *restriction of imports from "hard currency" sources*. This involves some restrictions on commercial imports, and some adverse effects on both entrepôt and import/export trade. As against this, membership of the Sterling group confers certain distinct advantages. The position has improved in the past five years and there are good prospects that this improvement will continue. In the meanwhile it is the policy to relax the discriminatory import controls administered to preserve a set balance of trade as fast as the improvement of the general situation permits.

428. The entrepôt trade of the northern part of the Federation is concentrated at Penang which stands in the same relation to the mainland of the peninsula as does Singapore in the south. The natural trade sphere

of Penang includes adjacent areas in Sumatra, Thailand and Burma as well as the northern part of Malaya. In optimum conditions goods imported from outside this area tend to enter it through Penang; its exports pass out through Penang; Penang is the centre of the regional internal trade in local produce. As this sphere comprises the territory of four national governments it is hardly to be expected that the flow of trade to and from Penang should be completely free. There is of course no barrier between Penang and the rest of the Federation, but restrictions of various kinds designed to divert trade to other centres or to conserve scarce foreign currencies have been imposed by other governments. Their right to take such action cannot be disputed, but there is often room for negotiation of alternative arrangements more satisfactory to both parties and such negotiations will be entered into whenever favourable opportunities occur.

429. But the best means of developing entrepôt trade lies in *providing the best and cheapest entrepôt services.* The essence of an entrepôt is that it is a regional warehouse through which large stocks pass, having been procured in anticipation of demand by the exercise of the trader's skill and experience of market conditions. This skill and experience of the entrepôt trader will be at their greatest advantage if certain conditions are satisfied, and the fostering of these conditions will be an important item of policy. The storage, handling and transit of supplies must be cheap and expeditious. This requires good port facilities, convenient and adequate communications between quayside and godown, ample storage space and efficient labour. Entrepôt trade must pay taxes as its contribution to public services, but these revenues are best collected as taxation of profits (income tax) rather than of turnover (customs duties).

430. In addition to trading services proper the entrepôt has come to be a convenient point for processing and grading produce. This is not necessary where the producer himself has been able to turn out a fully processed and uniform product. But where produce comes from areas in which production is not highly organised, or where it is not economic to process in small quantities, it becomes necessary for the entrepôt centre to undertake such services as remilling and grading rubber, smelting tin-ore and obtaining oil from copra in order to ship a satisfactory product of minimum bulk and standard quality to more distant markets. These services are in the nature of light industries and are subject to the considerations of policy set forth in Section VI of this Chapter dealing with Secondary Industries.

431. The direct import and export trade of the Federation passes through Singapore and Penang to a large extent and enters into the entrepôt trade of those centres. But there is also direct shipment through mainland ports, especially Port Swettenham, to and from distant countries. From one point of view the northern part of Malaya may be considered part of the entrepôt trade sphere of Penang; from the other aspect Penang is a Malayan port, among others, for the import of goods for consumption in the Federation and the export of goods produced in the Federation. The following paragraphs are concerned with this "direct" trade of the Federation, including that which passes through Penang.

432. External trade is so large a part of the Malayan economy that there is a specially close relation between imports and exports; i.e., the intermediate sector of local production for local consumption is less significant than in most other countries. The cost of imports is one of the main factors in determining the cost of living, which in turn contributes to determining the cost of producing goods for export. In order to be a low cost producer the Federation must purchase as large a proportion of its

imports as possible from the cheapest sources. In this policy, however, exceptions have to be made to conform to Sterling Area and Imperial preference obligations; it has already been stated that the Federation receives economic benefits which balance these obligations. But while Sterling Area policy makes it necessary to restrict general imports from certain sources of supply, exceptions to this policy are made in favour of essential imports, or those for which the difference of price between permitted and excluded source of supply is very marked. Where, on the other hand, the goods required are of a low priority or the difference in price is not very great, they have to be obtained from Sterling Area sources.

433. The question of restricting imports in order to protect nascent local industries is likely to arise more generally as the development of light industries progresses. The association of the Federation of Malaya in the 1947 General Agreement on Tariffs and Trade restricts the scope for action in this respect. Moreover, it is not usually in the interest of the community as a consumer that it should be shut off from the cheapest sources of supply, and therefore *policy will not generally favour protection.* But if a foreign surplus is being "dumped" in the Federation, i.e., sold at a price less than its sale price in the producing country plus the cost of freight to Malaya, there may be a case for protection of local industries.

434. The export of Malayan products is so closely linked with questions of production that it is difficult to deal with it merely as a matter of trade. The Malayan staple exports are for the most part raw materials which undergo some form of processing in Malaya before they are exported. Trading experience since the war has demonstrated in the case of rubber and timber the need for *setting up standards of quality* and for developing specialised forms of the product suited to industrial requirements in the consuming countries. Where the Malayan export product is in competition with similar products from other countries or with a substitute product, there is need to *advertise the merits of the Malayan product* in consuming countries. Publicity of this kind has in the past been handled by the Malayan Agent in London; the Malayan Stand at the annual British Industries Fair has been the main shop-window. More ambitious projects of publicity are rather a matter for the trading interests concerned than for Government, though in some cases Government assistance may be required. This subject has already been dealt with in Section III on Export Crops.

435. Participation by the Federation of Malaya in international commodity agreements is under the present constitution obtained through association in agreements to which the United Kingdom is a contracting party. With an economy so much dependent on trade in commodities, for import as well as export, the Federation has much to gain from international agreements designed to ensure stability of prices and supplies, provided that the terms are to the minimum extent restrictive, onerous or uncertain in their future working.

(xi).—Capital Formation and Credit Facilities.

436. In considering the matters to be discussed under this heading it will not be necessary to go far beyond a Report* which was written in 1947 and which deals with the question whether the machinery for agricultural credit in Malaya is adequate. Agriculture is not the only industry of the country, but it is and is likely to remain the principal one. Moreover, the raising of capital for other industries or for trading purposes

* Its full title is a "Report of the Committee appointed by His Excellency the Governor of the Malayan Union to consider whether the machinery for agricultural credit in Malaya is adequate, to comment on suggestions in the Report of the Colonial Economic Advisory Committee and to consider generally the problem of rural indebtedness." It was published as Legislative Council Paper No. 50 of 1948.

is not in general a matter of as much difficulty as it is where agriculture is concerned. The only respect in which the Report falls short—because the matter was only incidental to the terms of reference of the Committee which produced it—is in connection with the facilities for raising capital within the country and for making it available to those who require it. This matter of the supply of capital can best be dealt with after the principal facts relating to the need for it as set forth in the Report have first been summarized.

437. The Committee adopted the following divisions of the subject matter in its Report:

GROUP I.—Large estates of 500 acres and over, incorporated as companies with their share capital and considerable financial backing. Their products are mostly rubber, coconuts, oil palms and tea.

GROUP II.—Medium-sized estates of between 50 and 500 acres which are usually privately owned or owned by partnerships. Their products are mostly rubber, coconuts or pineapples.

GROUP III.—Smallholdings of under 50 acres. Most of these are peasant holdings of about 3-5 acres worked by the owner and his family. This group was sub-divided into (*a*) those whose main product is padi, (*b*) those who have planted rubber or coconuts, and (*c*) those whose main product is pineapples.

GROUP IV.—Small areas of vegetable cultivation usually in the vicinity of towns held under Temporary Occupation Licences.

438. As regards Group I—the large estates—the Committee concluded that, so far as short-term credit was concerned, the companies concerned were large enough and strong enough to make their own arrangements. In the past the same had also been true for long-term credit. But since the war this was no longer so and the Committee therefore recommended that a Land Mortgage Bank should be organized to function as an Utility Corporation with a limited interest on capital. Its aim should be to provide long-term finance for agriculture at the lowest rates consistent with sound business and the payment of a low interest on its capital. While it should not make a loss, it should not aim at making high profits. The Committee explained that they had made this recommendation in preference to one that the Planters' Loans Board should be reconstituted and expanded as they did not consider that it was either necessary or desirable for Government, with its many other commitments, to be the sole provider of capital for this purpose. Whether in fact non-Government capital could be found to supply any considerable part of the total sums required cannot easily be determined unless the matter is put to the test. What can be stated, however, is that the need for long-term capital has in no way diminished since the Report was written and that if it can be found *either a Land Mortgage Bank or a reorganized Planters' Loans Board is necessary* in order that the development of the estate industry may be able to continue in an orderly manner.

439. As regards Group II—the medium-sized estates—the Committee reported that while pre-war sources of finance, consisting mainly of Chettiars loans but also of loans from Chinese Banks and from the Planters' Loans Board, could hardly be regarded as adequate, it was necessary to recognize that a great deal of the agriculture of Malaya—particularly the rubber—had been developed with the help of this finance. The Committee expressed their doubts whether medium scale agriculture would be able in the future to use profitably money borrowed at the rates prevailing

before the war, and suggested that in such a case *the same financial machinery as was recommended in the case of large estates should be made available*. Their comments are as appropriate to present conditions as when they were written.

440. As regards Group III—the smallholdings—the Committee recognised the complexity of the social and economic problems which are involved, and devoted a considerable amount of space in their Report to an analysis of them, considering separately padi, rubber and coconuts, and pineapples. For a proper understanding of the matter it is essential that their Report be studied in detail, and no attempt will be made to summarize it here. Assuming that this has been done, it will be appropriate to refer at this point to their main conclusions.

441. In the case of padi, these were that no immediate general effort should be made by Government to lend money direct to padi planters, though there might be occasion for doing so in selected areas for special purposes. The Committee had no hesitation in recommending *co-operative credit societies* as the only satisfactory form of machinery for supplying credit, and in doing so, endorsed what had in fact been the policy in matters of this kind. For their proposals in regard to the application of this policy reference should be made to the Report itself.

442. In the case of rubber and coconuts the Committee expressed the view that the existing sources of credit available to the small rubber or coconut grower were unsatisfactory and again recommended *co-operative credit societies* as the solution. They considered that the individual opening up of smallholdings of rubber and coconuts, the financing of which had in the past usually involved recourse to the above-mentioned unsatisfactory suppliers of credit should be abandoned in favour of *organized efforts under the supervision of a Colonization Officer*. While this second recommendation, like the first, is clearly acceptable in principle, practical difficulties are likely to be encountered through lack of trained staff. The Committee also considered the difficult problem created by the ageing of existing smallholding plantations of rubber and coconuts which would have to be replaced and pointed out the main difficulties, i.e., for technical reasons it might be necessary to replant in blocks larger than the size of the existing smallholdings, and, even if this problem could be overcome, there would still remain unanswered the question how the owners were to live during the interval of cutting out the old trees and taking the first crop off the new ones. The Committee were not alone in finding this an intractable problem to which no easy solution could be found, and it is still being investigated.

443. In the case of pineapples, the Committee again found that credit for the opening up of smallholdings of pineapples by individual cultivators was inadequate, and they again recommended *organized colonization* on the lines mentioned in the preceding paragraph as the most appropriate solution.

444. It will be seen that in every case of smallholding agriculture there are two main objects of policy. In the first place the smallholders need in one way or another to be organized into groups so as to be able to benefit from any credit facilities which can be provided. This in itself is no small undertaking, but discussion of it would be out of place in this Section. Secondly, there is the question of creating machinery to supply credit to these groups when formed. To meet this need it is proposed that *a Rural Development Authority should be instituted*, to be financed partly from Government and partly from non-Government sources, which would be able to come to the assistance in schemes of agricultural development, preferably in cases where the sponsors of the schemes or those participating in them are prepared to find a part of the capital required themselves.

445. Such schemes would by no means be limited to the growing of crops but would also embrace marketing and processing. In fact it is in these fields that some of the best opportunities will occur. Reference has been made to these opportunities in Section VI of this Chapter dealing with Secondary Industries and here it is only necessary to say that where finance is required for the setting up of a marketing organization the best means of obtaining it might be through the proposed Rural Development Authority.

446. As regards Group IV—vegetable gardeners—the Committee reported that the machinery for credit for the agriculturists concerned was both suitable and adequate.

447. It is now desirable to turn from the subject of supply of credit to that of the formation of capital. This must be a continuing process, new capital having continually to be saved out of the profits made by industry and set aside to replace worn out equipment in existing enterprises or to found new ones. A ready and abundant supply of capital is indispensable not only to develop a country, but to keep its existing industries going. Most countries have had to depend on finance from overseas to assist in their development at some stage in their history, though the extent to which they have had to rely on this has greatly varied in different cases. Obviously this represents an intermediate stage in their development, and whatever progress may be made in the political sphere there can be no real economic independence until a country can both raise by itself a large part of the finance which it requires, and possesses machinery so that it may be readily canalized into productive enterprise.

448. Unfortunately it is only possible to state this problem, without going on to say how near or how far Malaya is from its solution. A formal study is necessary, both for calculating the present investment of overseas and locally owned capital in this country, and of the rate at which they are expanding. As a guess, one might say that they were not expanding at the rate at which they could be absorbed and if this were found to be correct two further fields of enquiry would present themselves. One of these would involve consideration of the extent to which it may be possible and desirable in present conditions to attract additional capital to Malaya from overseas. Some aspects of this matter will be dealt with below, in Section XII of this Chapter dealing with Finance. But the more important study would have the object of discovering in what way and to what extent thrift can be encouraged within the country, through what channels the savings of the investor can be made available to the promoters of industrial, and particularly agricultural undertakings, and in what way the risks inherent to such transactions can be minimized. It is repeated, these questions cannot be answered without long investigation, but enough has been said to show that there is perhaps no problem affecting the development of Malaya more deserving attention.

(xii).—Finance.

449. If the first duty of Government is to maintain law and order, the second without doubt is to have and to carry out a sound financial policy. Such a policy implies much more than the safeguarding of the Government revenues, which amount to no more than about one-seventh of the national income, if as much. The object must rather be to create conditions favourable for the building up of the whole income, including the six-sevenths of it or more that remain in the pockets of the tax payer.

450. It follows that taxation, currency, etc., are only elements, although they may be important ones, in the general economic strategy which the Government endeavours to carry out, using such legal, administrative, and financial means as may be available. It is with the

last of these that this Section is particularly concerned. They include (*a*) the establishment of an equitable, fruitful and convenient system of taxation; (*b*) the organization of public expenditure to yield the largest output of welfare for the given input of funds; (*c*) the balancing of the budget—with reasonable latitude for deficit spending in periods of recession and surplus accumulation in periods of abnormal prosperity—so as to ensure both confidence and capacity to undertake whatever work Government has to do when it has to be done; (*d*) the right use of fiscal measures to deal with inflation; (*e*) the proper use of legislative permissions and prohibitions, subsidies and tax reliefs, to encourage sound enterprise and to direct it when there are dangers to the public interest.

451. Taxation policy is to some extent conditioned by the need to take account of Singapore and the possibility of smuggling, movement of capital, etc., taking place if the differences in taxation in the two territories are too great. The newest feature of this taxation is the much discussed income tax, the advantages of which are that it is distributed more widely than most other forms of tax and can be better graduated according to the wealth of the persons paying it. The chief danger is that of evasion, the opportunities for which diminish, however, as the organization for collection becomes more effective. The export duty on tin, being levied in lieu of royalties, constitutes a charge or price for the public property in minerals sold to the companies. The Government must expect to lose this source of revenue as the known deposits are largely worked out and a high rate of duty is therefore justified. The present form of duty does not make it possible to discriminate between land of varying richness or "profitability," and a change of system which would make it possible to impose a duty the rate of which varied with the quality of the ground worked would have much to recommend it. At the same time consideration could be given to the present system of division of profits between the tributor and the recipient of tribute. The export duty on rubber consists of a 5 per cent. *ad valorem* export duty plus $\frac{1}{3}$ cent a lb. cess (the benefit of which returns to the industry). Profitability of estates varies even more greatly than that of mines, but in the case of rubber it has less to do with the intrinsic qualities of the soil and results rather from the skill of past and present management. There is not therefore any case for altering the incidence of the export duty on rubber as between one producer and another, though there may well be justification for a variation in quit-rents.

452. Thus with the possible exception of the export duty on tin, there would appear to be no good reason for altering the general system of taxation or the form in which it is imposed, so far as the principal items are concerned. A rather better case exists for a general *review of minor items of revenue* including not only taxation but licences, fees, etc. The present position is that the pre-war structure of taxation has been superimposed on a new constitutional framework, and it is by no means a perfect fit.

453. Regarding the second of the financial means of executing a general economic policy, namely, the organization of public expenditure, there is not much which need be added here to what has already been said in paragraphs 10-16 of Chapter I and in paragraphs 60-63 of Chapter II. There are, however, two matters particularly deserving attention. The first of these is the development of a new instrument of economic policy. The *advantages of the public corporation* (of which the recently created Central Electricity Board is an example) are that it offers an opportunity of combining public control with business accounting methods and the principle of incentive. Also a public corporation need not be dependent for its supply of capital on the Government, and may

thus be able to develop its services very much more rapidly than would otherwise be possible. The public corporation is capable of very wide application in modern conditions. It has been employed to administer public monopolies (e.g., tobacco) or as an instrument of social regeneration (e.g., the famous Tennessee Valley Authority). Similarly the degree of public control is capable of great variation.

454. The second form of development agency which has proved its worth in post-war Malaya is that of boards financed from Government funds, or from private funds with a Government guarantee, and empowered to give loans to private industry. Originally devised to assist the process of rehabilitation and reconstruction, such boards could equally well be used to promote industrial development. It has already been noted in Section XI of this Chapter dealing with Capital Formation and Credit facilities that if private enterprise in certain spheres has to rely on supplies of credit obtained from private sources, a great deal of useful and profitable development will be held up. It is not unlikely therefore that there will be further occasion for *extending the use of loans boards* and similar agencies in the future.

455. The balancing of the budget, which was the next of the financial instruments for carrying out the general economic strategy of the country, will be dealt with in the final Chapter.

456. As regards the use of fiscal measures to deal with inflation the position is that there has been an increase of currency in circulation from about $120 million in 1938 to about $400 million in 1949 without any proportionate increase in the goods and services which that money would procure. There is of course nothing extraordinary about this; parallel developments have taken place in the countries with which the Malayan economy is most closely linked and they are directly attributable to the war. In the circumstances it seems improbable that much can be done to promote conditions more favourable to trade and industry by adopting any different policy in respect of the local currency which, it has to be remembered, is in use over a much wider area than Malaya alone. Similar considerations apply to any proposal to alter the existing rate of exchange between the Malayan dollar and sterling, arguments in favour of which are from time to time put forward.

457. The last of the matters to be dealt with under this section is the proper use of legislative permission and prohibitions, subsidies and tax reliefs, to encourage sound enterprise and to direct it when there are dangers to the public interest. There can be little doubt that the general policy should be one of permitting *as few special concessions as possible* with the obvious corollary that where for any reason discretionary powers exist the general lines on which they are exercisable should be clearly laid down. Not only does the observance of this principle greatly simplify administration but it also greatly diminishes the opportunity for corruption. As a matter of general experience, corruption tends to occur more freely where the power to issue or withhold licences, etc., is relatively unfettered.

458. Such a declaration of policy may seem insincere in face of the very elaborate apparatus of exchange control, supporting and supported by a system of import and export control, which now exists in Malaya. Similarly the whole procedure of rationing provides endless opportunities for unfair discrimination. But only a moment's reflection is necessary to show that these exceptions in fact prove the rule. Both foreign exchange control and rationing are symptoms of shortage—in the latter case of foodstuffs and in the former of "hard" currency. As these shortages, like so many others which appeared during or immediately after the war, become less stringent, the need for measures of control will gradually lessen, and finally disappear.

459. As with individuals, so with classes of individuals, the machinery of licensing, etc., may be consciously used *to improve the opportunities and the economic status of a particular section of the community*. In such a case the rule previously stated must be faithfully observed, namely the limitations of the discretionary powers vested in the licence issuing authority have to be clearly laid down. Otherwise, in striving to avoid one injustice, a worse one may be created.

460. The importance of the financial principle which has just been stated to the future development of Malaya can hardly be over-stated. The population of the country is expanding rapidly—far more rapidly than local capital is likely to become available to increase its productive capacities (on which, as has been stated again and again in the course of this Chapter, all possibilities of social and material improvement depend). It is therefore and will for some time be necessary *to encourage the investment of foreign capital* in Malaya. Now there are a number of factors which influence the foreign investor in his decision whether or not to invest his money overseas. His first consideration, obviously, is whether he will be able to earn a profit. In this respect Malaya is more fortunate than many countries which would dearly like but are unable to attract foreign capital because of their basic poverty. The second consideration is whether, having earned a profit, he will be able to take it out of the country. But even if fully satisfied on both these points the foreign investor still requires one further assurance, namely that he will receive fair treatment. If, as suggested above, the principle of non-discrimination in economic matters is wholeheartedly accepted and—with such exceptions as may be considered essential and have been strictly defined—rigidly applied, the investor need have no anxieties on this score. The fact that the present level of prosperity of all classes of the population in Malaya is far higher than that prevailing in almost every other country in Asia can be largely attributed to the fact that this policy has been accepted and enforced with a fair measure of success in the past.

Part IV.—CONCLUSION.

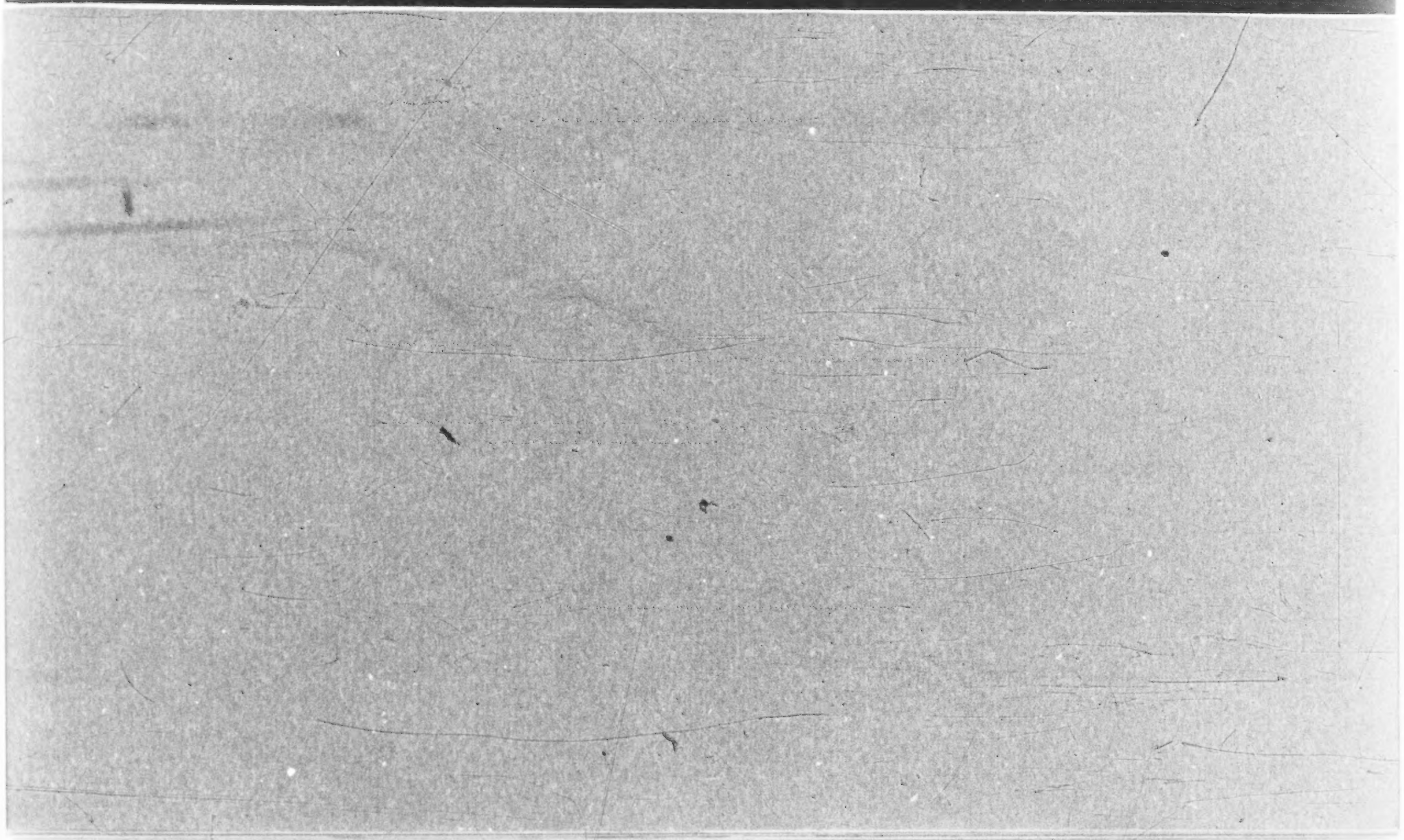
461. This Chapter can be briefly summarized by saying that Part II contains some estimates of production by the principal industries of the country, in respect of the years 1950-1955. To achieve these aims it will be necessary first to adopt or continue certain lines of economic policy, and second to ensure as far as possible that the carrying out of these policies is not interrupted. The effects of any interruption—or, for that matter, of any unexpected stimulus to production—cannot be assessed in advance and must therefore be omitted from the calculations. This is not to say that they have been overlooked.

462. If some uncertainty regarding the future is inevitable, this can be partly off-set by planning. In Part III of this Chapter an attempt has been made to state—it is believed for the first time—a policy for trade and industry which will commend itself to all three parties in the economic life of the country, Government, industry and the people. While it is not pretended that these statements of policy are adequate as they now stand, it is hoped that they may be the forerunners of others which are, and which can be described as truly national.

463. The need for such a national policy designed to raise the standard of living is described in Part I. No more need be said of this here, as the arguments in favour of a common economic policy, like those for a common political policy, are both self-evident and compelling.

CHAPTER IV.

Summary.



CHAPTER IV.

SUMMARY.

464. The proposals envisaged in Parts I and II of the plan, other than those the capital cost of which is to be financed from Colonial Development and Welfare Schemes, involve expenditure of $186,325,000 on works of a capital nature and additional expenditure of a recurrent nature rising to $22,536,000 in 1955. Of the former $36,125,000 are already included in the 1949 $100,000,000 loan and it is proposed to meet $91,000,000 from the proceeds of a further public loan to be floated in 1952 and succeeding years, leaving $59,200,000 to be met directly from the revenue. Of this sum, $4,068,000 was included in the 1950 estimates, leaving a balance of $55,132,000. The loan servicing charges which will result from the raising of this further loan will increase the figure of additional annually recurrent expenditure quoted above. It is impossible to say how much this increase will be until the terms of the loan are decided which can only be done at the time of issue in the light of market conditions then prevailing but, if it is possible to raise the loan at an interest rate of 3½ per cent. and a 20-year life the annual servicing charges will be approximately $7,221,600, making a total additional annually recurrent expenditure of $29,757,600. Of this amount $1,422,000 is already included in the 1950 estimates, leaving a net additional annually recurrent commitment of $28,335,600.

465. In considering the financing of a development plan of this nature the first and most essential point to consider is whether the public revenue will be sufficient to maintain the proposed schemes when completed. A considerable number of the schemes in Chapter II of the plan are, of course, in themselves revenue earning and should support themselves. Examples of these are the telecommunications proposals and those drainage and irrigation schemes in respect of which additional land rents and drainage or water rates can be recovered. An allowance for additional revenue to be derived from these schemes themselves is made later.

466. It should be pointed out at this stage that the figures which follow represent those of the Federation as a whole. Although the State and Settlement Governments possess considerable financial autonomy, it is against the background of the resources of the whole of the Federation that the financing of development must be regarded since the needs of some of weaker members may be more urgent than those of others.

467. Let us therefore attempt to forecast the total revenue and expenditure of the Federation as it will be when the present emergency, which now obscures the whole financial position, has ended. The latest estimate of the total normal revenue of the Federation for 1950, excluding His Majesty's Government's contribution in aid of defence expenditure and grants under Colonial Welfare and Development schemes, is approximately $375,000,000. This includes $40,000,000 in respect of receipts from income tax which is the revenue expected to be received in 1950 in respect of one and a half years of assessment. It is, however, hoped that with increasing experience on the part of the Income Tax Department the revenue based on present rates of taxation will shortly rise to $40,000,000 in respect of a single year of assessment and this figure has therefore been retained. Taking into account the fact that certain increases in taxation were only imposed half way through the year a further $8,100,000 may be added for a full year making a total of $383,100,000. 1950 has, however, been a very exceptional year in respect of the price of rubber,

the estimated total collection of export duty on which is $42,300,000 during 1950. This cannot be expected to continue and, if adjusted to an assumed price of 45 cents per lb. but to a total increased production of 750,000 tons, the revenue from this source would be $37,800,000, involving a reduction of $4,500,000 on the total revenue and bringing it down to $378,600,000. To this figure of $378,600,000 must be added an estimated amount of $15,000,000 on account of revenue to be expected directly from the development schemes themselves, making a total revenue of $393,600,000.

468. It should be pointed out at this stage that in this figure of $378,600,000, only $4,400,000 are included on account of the increase in import duty on tobacco introduced during the month of June, it having been assumed that consumption will in consequence fall by 20 per cent. It is probable that this estimate of the consequent fall in consumption is on the high side but since, with the assumed fall in the price of rubber, consumption of other dutiable goods will probably fall, it is thought that this is as good an estimate of the total revenue as can be made.

469. Against this, the total expenditure on personal emoluments and annually recurrent charges (including the regular Police Force and the first three Battalions of the Malay Regiment but excluding the temporary increase in the Police Force due to the emergency and other emergency services and also expenditure under Colonial Development and Welfare schemes) in 1950 is estimated to amount to $305,000,000. This may be reduced by, say, $2,000,000 when the Food Control and Supplies Department can be wound up but without doubt increased expenditure will be necessary on further additions to the Police Force while the 4th Battalion, Brigade Headquarters, and other ancillary units of the Malay Regiment (which are not included in the figure of $305,000,000 above) and also the Volunteer Forces will remain a permanent commitment. It is impossible to give accurate estimates of the annual cost of these but an attempt has been made as follows:

Expansion of the Police Force	$34,500,000
Additional units of the Malay Regiment ...	7,000,000
Volunteer units	1,500,000
	$43,000,000

470. The figure of $34,500,000 in respect of the expansion of the Police Force is based on the assumption that a Police Force of a total strength of not less than 30,000 will be required. It is a rough figure bearing the same proportion to 30,000 as the recurrent cost of the Force at present bears to its present strength.

471. The Organization and Methods Adviser is examining the organization and cadre of Government departments as fast as the limited staff which the Government can put at his disposal permits him and no doubt considerable economies will result but increases in the administrative staff particularly in the rural areas will be necessary on security and other grounds. It has therefore been assumed that the present rate of administrative expenditure will remain unchanged.

472. In addition, $7,000,000 is a rough estimate of what may be expected to be required in a full year to implement in the Federation the recommendations of the Special Committee on salaries coupled with those of the Committee on cost of living allowances and comparable proposed increases in the wages of daily paid Government employees. One of the

objects of the Development Plan is to raise standard of living of people in the lowest income groups, but the present continual pressure to raise the salaries and wages of Government servants is a very serious matter when viewed against the background of the Development Plan since such increases clearly make all activities of Government more expensive and thereby limit the ability of the Government to expand its activities.

473. Again, sinking fund charges and interest on the portion not so far raised of the 1949 loan are not included in the figure of $305,000,000 mentioned above and a further $3,600,000 must be added on that account.

474. A further increase needs to be made on account of normal increases in annual expenditure on pensions. $1,000,000 may be allowed for this within the period of the Development Plan.

475. So far, this analysis of the expenditure of the Federal Government has been confined to what is technically known as annually recurrent expenditure. But there must be every year additional expenditure on replacing and effecting special repairs to plant and equipment of various kinds, in effecting relatively minor improvements which are not chargeable to loan funds and in meeting the day-to-day demands of the administration for new equipment. It is impossible to give an accurate estimate of the amount of such expenditure since the demands vary each year but the provision in the 1950 estimates, which were very heavily pruned, after deducting expenditure on the emergency and on projects financed from Colonial Development and Welfare sources, amounted to $30.6 millions. This included $1.4 millions in respect of capital expenditure on the draft Development Plan, and so $30 millions may be taken as a minimum average of what is known as Government special expenditure.

476. Leaving aside, therefore, capital expenditure on the draft Development Plan and expenditure directly related to the present terrorist campaign (as opposed to future defence requirements) the true financial position of the Federation when the present Development Plan is in operation would seem to be as follows:

Revenue		$393,600,000
Expenditure at 1950 level	$305,000,000	
Additional Defence expenditure ...	43,000,000	
Revised salaries and wages	7,000,000	
Normal special expenditure	30,000,000	
Additional interest and sinking fund charges 1949 loan	3,600,000	
Recurrent expenditure on Development Plan	28,335,600	
Increases in pensions	1,000,000	
Total Expenditure ...	$417,935,600	
Less expenditure on Food Control ...	2,000,000	
		415,935,600

477. This indicates a probable deficit of $22,335,600 and makes no allowance for the further capital expenditure of $55,132,000 to be met from revenue over five years or $11,026,400 per annum.

478. Finally the reserves of the Federation have, as a result first of all of expenditure in respect of the Japanese occupation period and restoration of damage done during that period and later in respect of

expenditure on the emergency, fallen from approximately $221,500,000 in April, 1946, to approximately $69,000,000 at the beginning of 1950 and need to be built up again. It is suggested that it would be prudent to aim at restoring these reserves at the rate of $10,000,000 per annum and on this basis additional revenue of approximately $43,362,000 per annum will be required if the Development Plan is to be financed and the reserves of the territory slowly restored.

479. In the first instance, the Federation must make every effort that it can to raise this additional revenue itself. It is confidently expected that for the next few years, having regard to the fact that direct expenditure on Defence and Internal Security on the basis of the figures in this Chapter amounts to $88,900,000 or 22.6 per cent. of the total revenue, His Majesty's Government will be willing to contribute towards that expenditure but His Majesty's Government will first require to be satisfied that, having regard to rates of taxation in the United Kingdom, the Federation is doing everything that it can to help itself and that it will in due course become financially self-supporting.

480. It may be taken as certain that it would not be beyond the capacity of the country to find this additional sum in annual revenue. The question is rather how, within the limits of the present structure of taxation, the load may be spread most evenly. The most obvious means of increasing revenue is to increase the yield from income tax. This can be done in two ways—first by increasing the rate, and second by expanding the scope of this tax. The latter method, which would be effected by reducing personal and other allowances so as to make a greater body of the citizens liable to pay it, involves obvious administrative difficulties, owing to the large number of persons from whom comparatively small sums would have to be collected. It might well be several years before such a system could be brought into operation. The political advantages would, however, be considerable, since it is as a taxpayer, more than in any other way, that the individual is brought face to face with the fact that his own productive efforts are ultimately the only source from which social developments will flow.

481. Income tax must therefore be regarded as the main source of additional revenue, but it is not the only one. Customs duties may also be increased to a certain extent, and an upward revision of land rents is undoubtedly overdue. It should be made clear, however, that it is not an object of policy to find the maximum rate that a tax will bear, and then impose it. On the contrary it is the hope that, with an expanding trade and industry, only moderate revisions will be necessary in order to bring in the extra amount required.

482. Finally, there remains the question whether, if the development programme is a feasible one, the country is prepared to carry it out. The choice is clear. On the one side a great effort is being made to re-establish conditions of peace and security. On the other side an equally great effort must now be made to provide firm foundations of economic prosperity and social well-being. The one is complementary to the other. Either of them alone will be barren of result.

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